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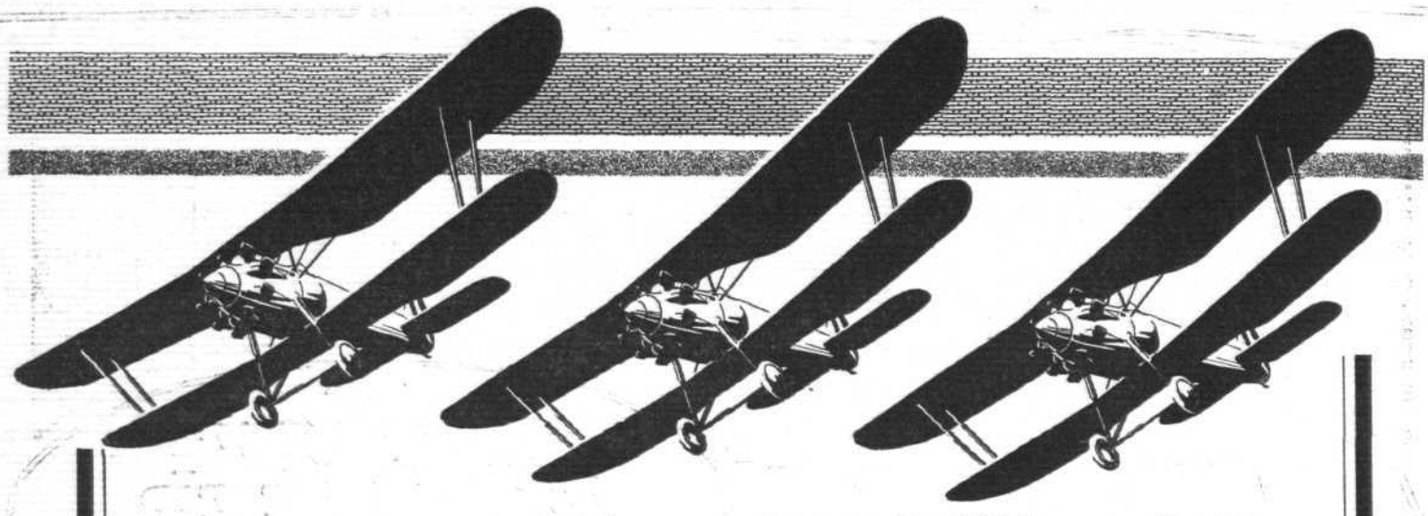
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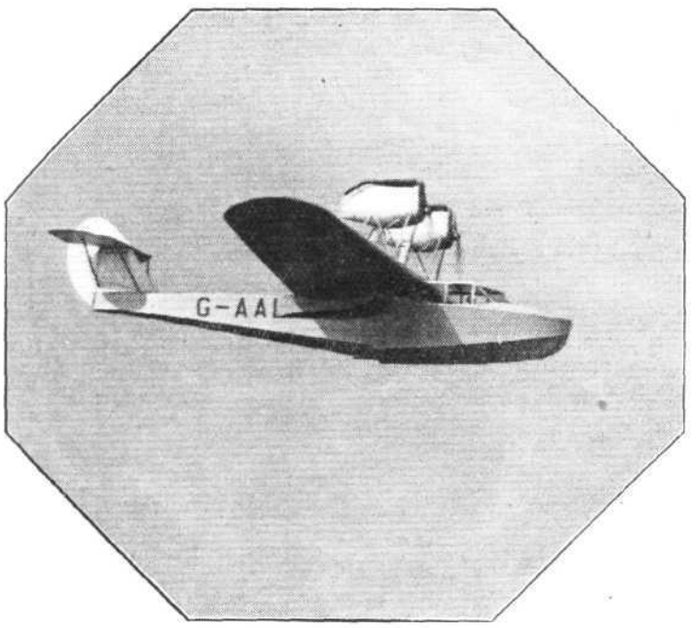
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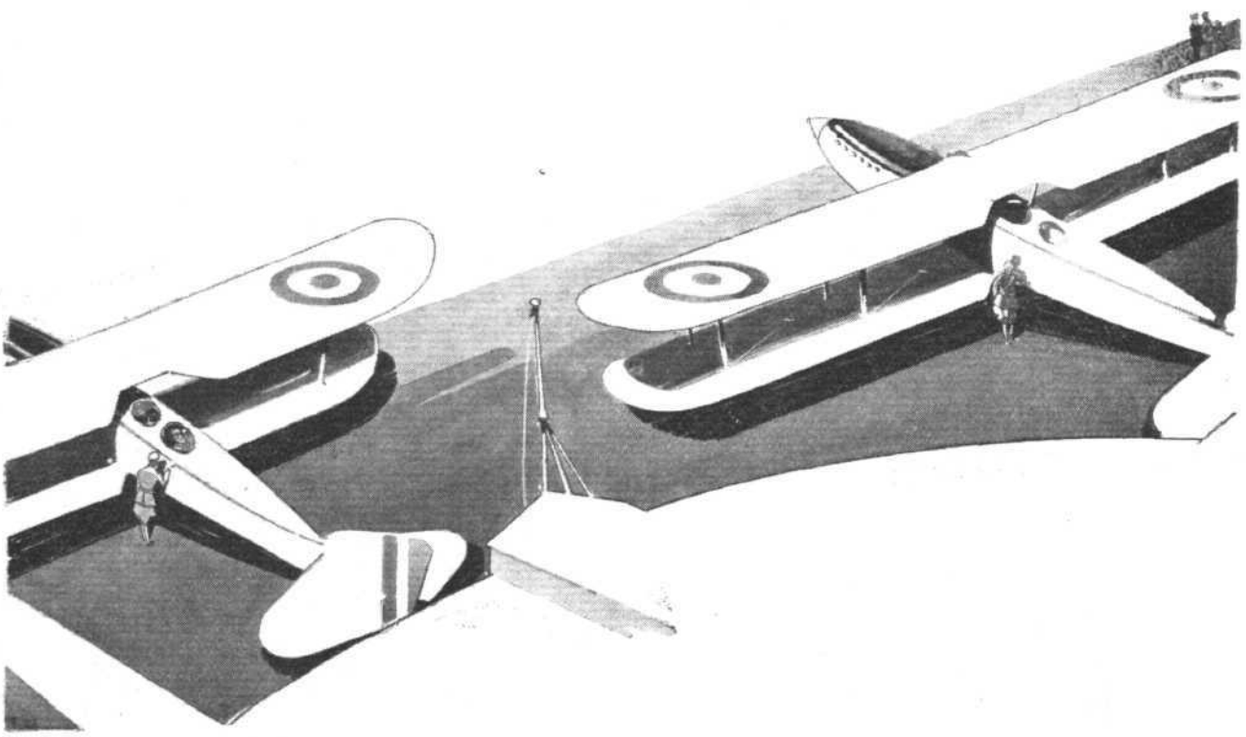
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No. 1090. (No. 46. Vol. XXI.) NOVEMBER 15, 1929 [Weekly, Price 6d. Post free, 7d.

Editorial Offices: 36, GREAT QUEEN STREET, KINGSWAY, W.C.2.

Telephone: Holborn 3211. Telegrams: Truditur, Westcent. London.

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DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list—

1929.

Nov. 15 R.Ae.S. Informal Dinner and Discussion on High-Speed Aircraft.

Nov. 21 "The Inspection of Materials," Lecture by Mr. L. W. Johnson, before R.Ae.S. and Inst.Ae.E.

Nov. 28 "Flying and Maintenance from the Owner's Point of View," Lecture by Sq.-Ldr. H. M. Probyn, before R.Ae.S. and Inst. Ae.E.

Dec. 5 "Recent Work on the Autogiro," Lecture by Senr. J. de la Cierva, before R.Ae.S. and Inst.Ae.E.

Dec. 12 "The Development of Materials for Aircraft Purposes," Lecture by Dr. W. Rosenhain before R.Ae.S. and Inst.Ae.E.

1930—

Jan. 22 "The Strategical Mobility of Air Forces," Lecture, by Gp.-Capt. C. L. Courtney, before Royal United Service Inst.

EDITORIAL COMMENT



MUNICIPAL airports is a subject well to the fore at the present moment. In last week's issue, we gave a very full report of the papers read at the Airport Conference, held on November 5, and from this report, even those not present at the Conference will have been able to follow quite closely all that was said. In our correspondence columns this week, we publish a letter from the Borough Engineer and Surveyor of Blackpool, Mr. Francis Wood, on the subject of airports. As Blackpool was the first local authority to obtain powers and to secure land for a municipal airport, and as Mr. Wood, in his capacity of engineer and surveyor to the borough can naturally be assumed to have been in the closest possible touch with the details of the arrangements, his remarks must be read with respect.

Municipal Airports

Concerning the Airport Conference, Mr. Wood states in his letter this week, that it might have been better if a few representatives of local authorities had been asked to express their views and indicate why there was a lack of enthusiasm, so that the aviation people might learn something of the difficulties with which local authorities have to contend. There is a good deal to be said for this, but on the other hand, those responsible for the organisation of the Conference may reasonably be assumed to have taken the view that the representatives of local authorities were desirous of learning as much as possible about the lay-out and running of an airport, so as to be able to go home with a clearer idea of what is required of an airport, and then, after mature deliberation decide, each in their individual case, whether or not the municipality in question is considered justified in taking the necessary steps to establish an airport in their locality.

That it is equally necessary for the aviation world to appreciate the difficulties of the local authorities may readily be granted, and it would seem that the time available at the Conference was not really adequate for a thorough ventilation of the subject. Mr. Wood, in his letter this week, gives a good deal

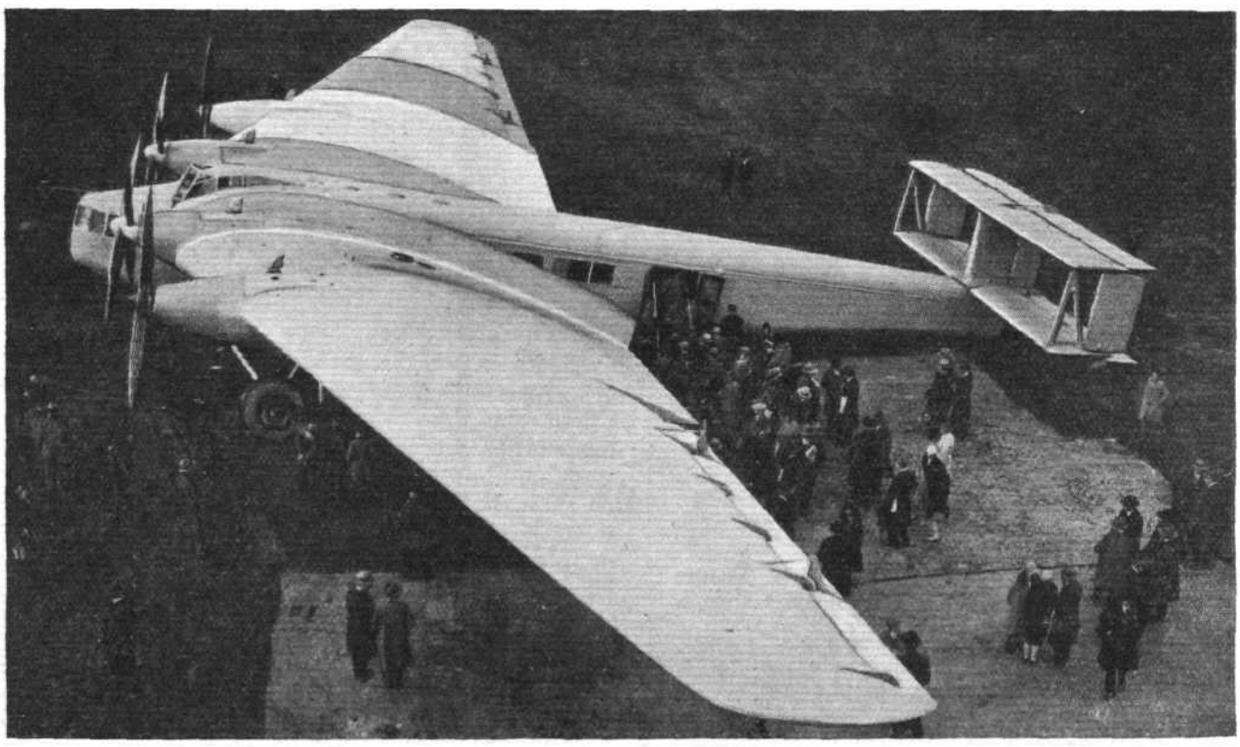
of information which should help to clear the air. FLIGHT will be very pleased to open its correspondence columns to a thorough thrashing-out of the subject of airports, both from the Air Ministry's, the local authorities' and the aircraft user's and aircraft operator's point of view.

The picture painted by Mr. Francis Wood is not a rosy one. But he is talking sound sense in terms of L. S. D., and it is no manner of use for the aviation world to shut its eyes. Facts have to be faced, and we had better face them boldly. The Blackpool municipal airport has been in operation for about four months. Mr. Wood points out that, although in the season some 150,000 people visit the town every day, with 200 trains arriving on many week-ends, and from 10,000 to 15,000 motor cars daily, only *one* aircraft from outside has visited the airport during the four months of its existence! The coffers of the corporation were, Mr. Wood points out, enriched thereby to the tune of one shilling! As Mr. Wood states, the corporation does not regret what has been done, but it very naturally has slowed up the expenditure on its airport.

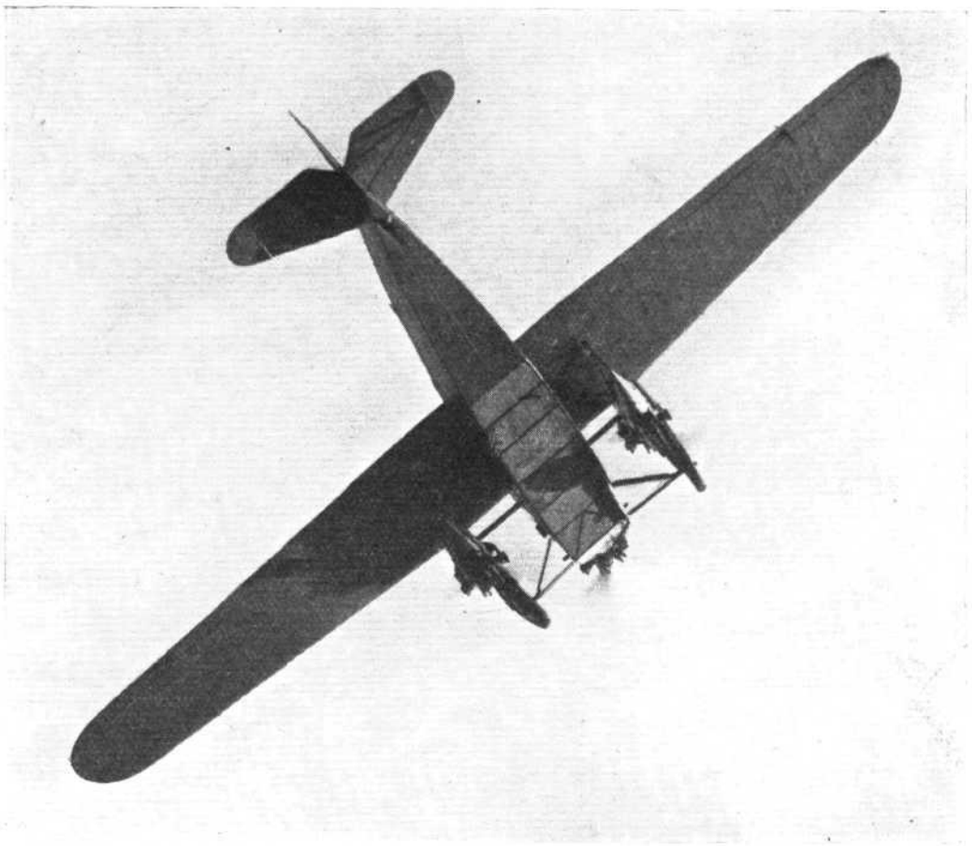
We think, however, that possibly Mr. Wood has overlooked a rather important side of this question of the use of municipal airports. It is at any rate conceivable that the reason for this insignificant use of the Blackpool facilities may be found in the less advanced state of other municipalities. In other words, had a number of towns *en route* to Blackpool been equipped with airports, it is highly probable that a considerable number of visitors would have arrived by air. An isolated airport here and there is not going to cause a steady inflow of aerial visitors. Not until proper airport facilities are available at reasonably short intervals will private owners, or hirers of air taxis, make extensive use of such facilities. Like pioneers in every form of progress, Blackpool is but paying the penalty of being well ahead of other towns. We would advise Mr. Wood to be of good cheer. Ultimately the Blackpool Corporation will reap the reward of its foresight.

At the same time, it would be futile to pretend that there is an immediate prospect of municipal airports being in a position to be run as paying propositions. Our correspondent points out that if 100 local authorities spend £25,000 each in buying land and simply preparing the ground, then a sum of no less than two and a-half millions is involved, which means a yearly sum of £175,000 to be provided out of the rates to cover the interest and sinking fund. Mr. Wood states that there are about 70 machines in the country. The last list of private owners to be published in FLIGHT (September 27, 1929), however, showed 153 private owners, with 169 aeroplanes between them. "If," Mr. Wood continues, "there were as many as 175 machines, the use of those grounds would involve a cost of £1,000 per machine per annum to the local authorities, and the loss value, agriculturally, would be about £20,000 per annum, because the 10,000 acres of land would be unrentable by any farmer." Well, actually the number of privately-owned machines is approximately that upon which this last estimate is based. And the number is growing rapidly.

Our correspondent raises many other points with which we have not the space to deal this week. Doubtless future correspondents will send in their views on some of these. There is just one point which we should like to raise. Mr. Wood states that local authorities have no power to run services from town to town. This is perhaps true at present. If any company or individual, however, wishes to operate an *unsubsidised* service he can do so, provided his equipment and personnel is passed by the Directorate of Civil Aviation, and in regard to the power of Municipalities in this connection if those powers do not at present exist, it surely can only be but a short time for the necessary expansion in this direction to be conceded.



THE AGE OF THE LARGE AIRCRAFT: The Junkers G. 38 has now been completed and has made its first test flights. The machine is a step towards Dr. Junkers' ideal of the "flying wing." The machine is fitted with 4 Junkers I. 55 engines, partly housed in the wing, and has a span of 147·5 ft. A scale model was illustrated in FLIGHT of February 7, 1929.



AVRO "FIVES" AND "TENS" IN PRODUCTION

WHEN Mr. J. D. Siddeley acquired the British rights to build aeroplanes of Fokker type, and decided to hand over the work of construction to A. V. Roe & Co., Ltd., now owned by the Siddeley interests, there were many who doubted that any appreciable business would result from this move. They failed to take into account the long experience of Mr. Siddeley as a shrewd business man. Those who had the privilege of knowing "J. D." intimately have the very greatest faith in his judgment, and once more that judgment has been proved sound. Not that Avro Fokkers are already being built by the hundred. That was scarcely to be expected. The first two Avro machines incorporating the typical Fokker construction of welded steel tube fuselage and all-wood wings were not completed until just in time for the Olympia Aero Show in July. Yet already quite a considerable number have been finished or are nearing completion at the Newton Heath, Manchester, works of A. V. Roe & Co., Ltd. The two types exhibited at Olympia, the Avro "Five" and the Avro "Ten," have been standardised to the extent that complete sets of jigs have been produced, and both types well advanced as regards series production.

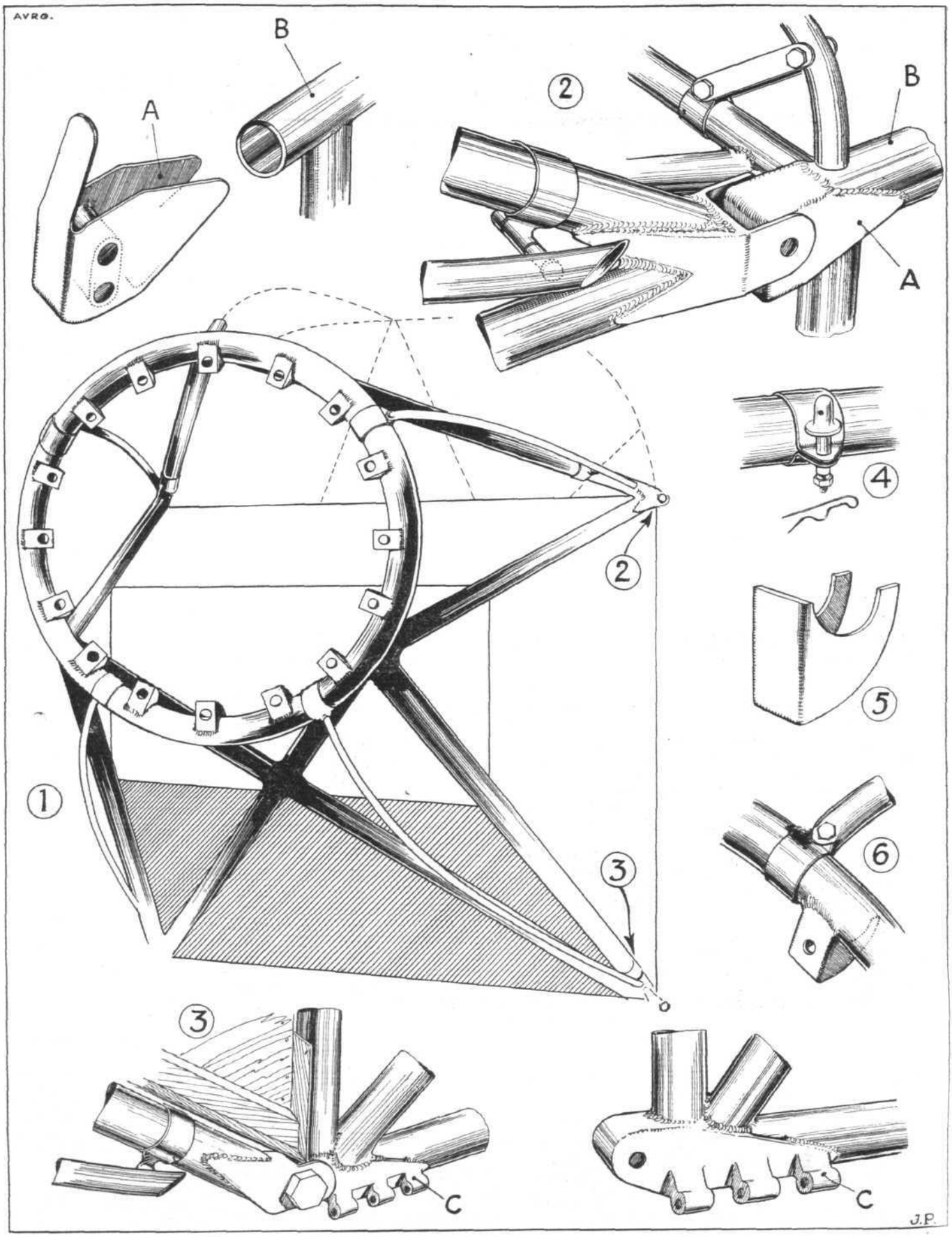
Reference has previously been made in FLIGHT (see October 25, 1929 issue) to the interest which operating companies overseas are showing in the two new Avro types. One of these, an Avro "Five" bearing the name "Knight of the Grail," has been purchased by the Wilson Airways, Limited, and is now on its way to Kenya, piloted by Mr. Campbell Black. Others have been built and some are on order.

The type illustrated this week is the Avro "Ten," of which already six have been built. The actual specimen shown in the photographs was undergoing flying tests at Woodford aerodrome, and was flying in its undercoat (of paint), hence its somewhat gloomy appearance in the photographs. When the aluminium finish, or whatever colour scheme is ultimately adopted, is added the machine looks very much prettier.

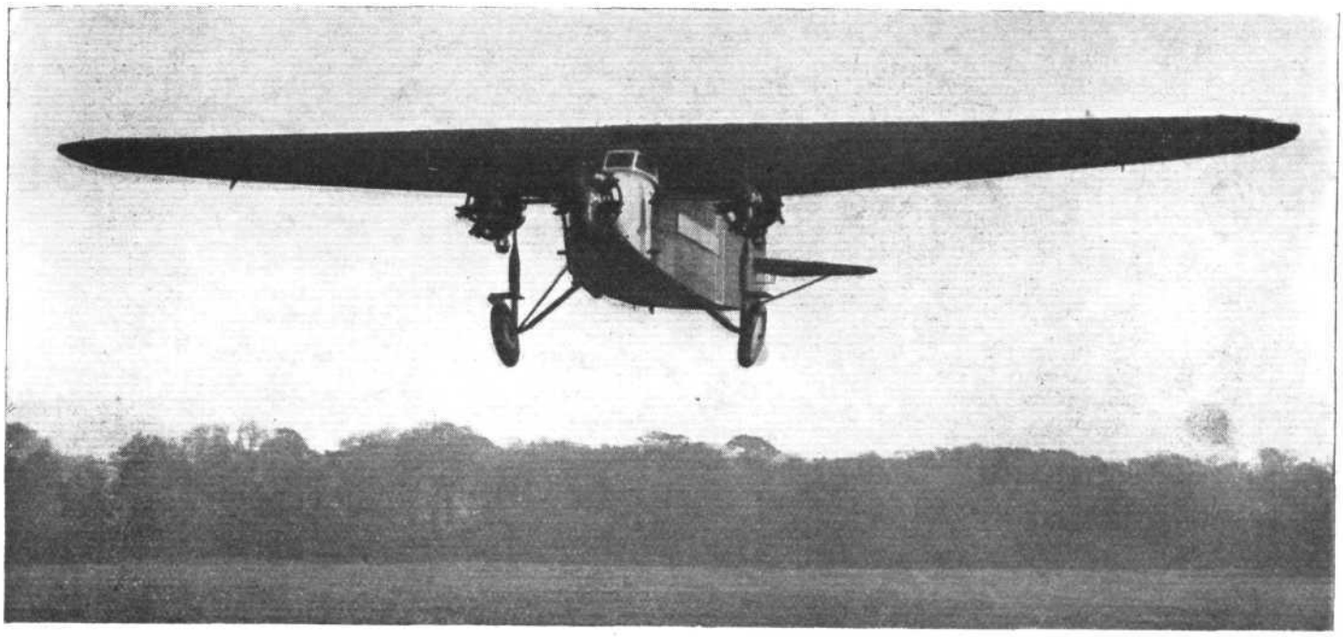
Recently we had an opportunity to visit the Avro works at Newton Heath, and in view of the very conflicting views on

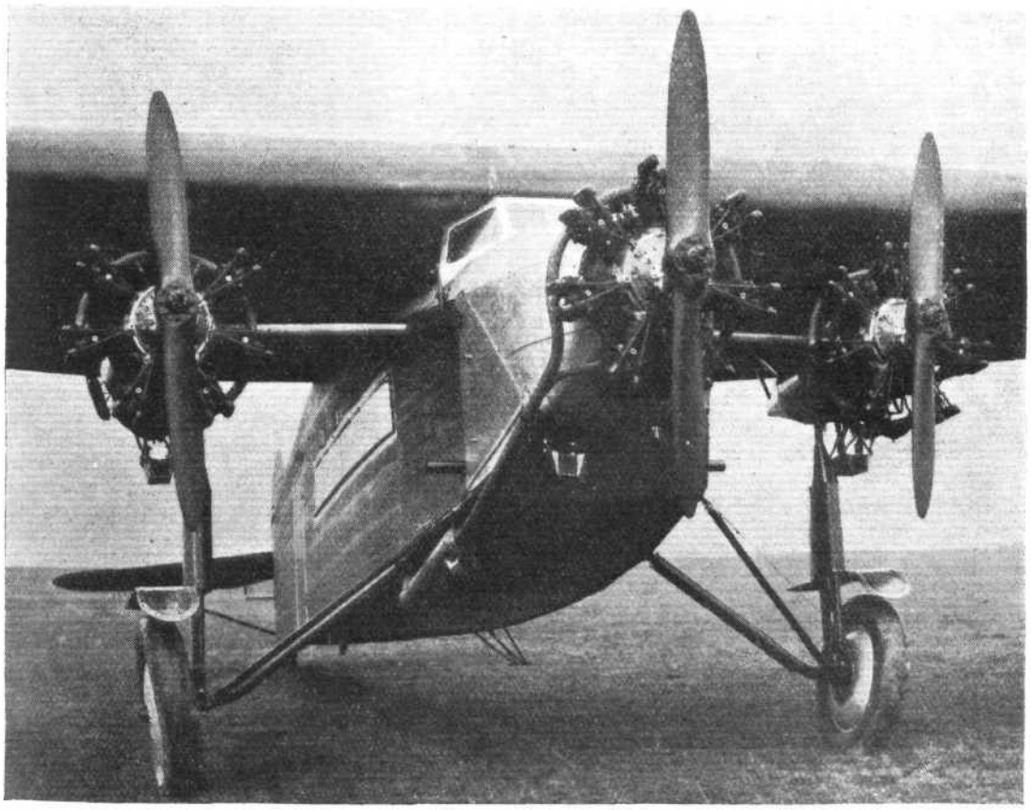


FRONT VIEW OF THE AVRO TEN : Three Armstrong Siddeley "Lynx" Engines.



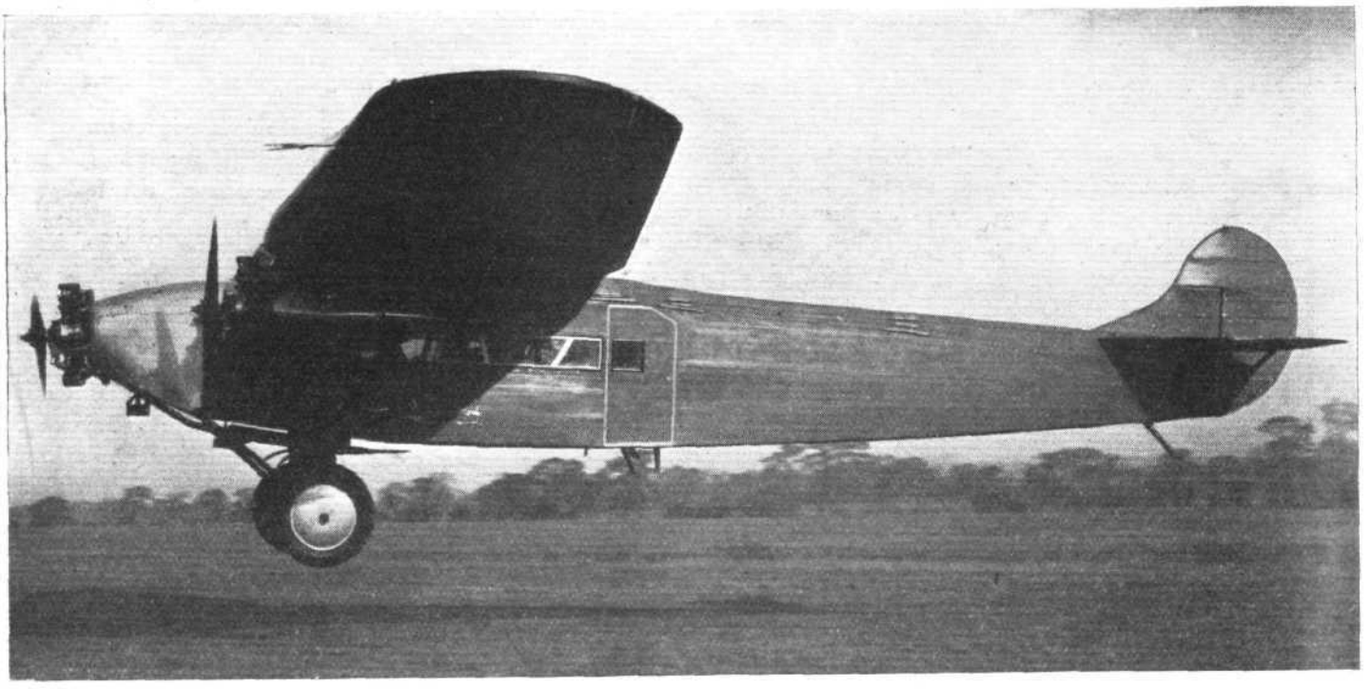
AVRO WELDED STEEL TUBE CONSTRUCTION: Circular engine mountings of the type shown in 1 are used both for fuselage and wing engines, but the actual supports of the rings differ slightly. The joint to the top longeron is shown in 2, with end fitting before welding shown at A and B. The fitting at the lower longerons is illustrated in 3, with details in 3 C. The type of cowling support and attachment is shown in 4. In 5 is shown engine bracket before it is welded on to the engine ring, and 6 shows a bracket, a portion of the ring, and the attachment of a cowling tube. (FLIGHT *Sketches.*)





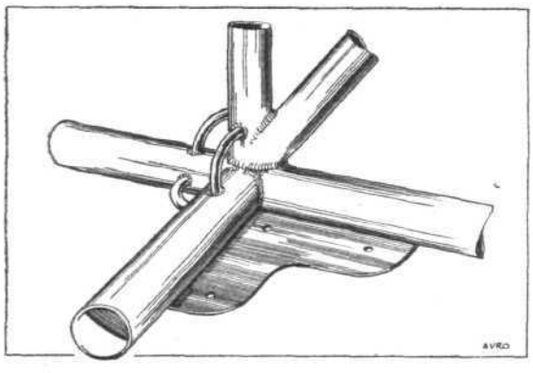
The Avro Ten : Above, the machine in flight. On the left, a close-up of the nose showing the three "Lynx" engines. Wheel brakes are fitted to the landing wheels. In the three-quarter front view below the man standing in front gives "scale" to the picture. (FLIGHT *Photos.*)





OFF : The Avro Ten taking off on a test flight at Woodford Aerodrome, piloted by Flight-Lieut. John Oliver, A.F.C. (FLIGHT *Photo.*)

welding held in this country, we were particularly anxious to see how Avros had tackled the work of welding the Fokker type fuselages. Let it be said at once that they have " taken to it like a duck takes to water." Mr. Chadwick, the firm's chief designer, and Mr. Dobson, works manager, were, we believe we are right in saying, both just a little dubious at



AVRO WELDED CONSTRUCTION : A typical fuselage joint. (FLIGHT *Sketch.*)

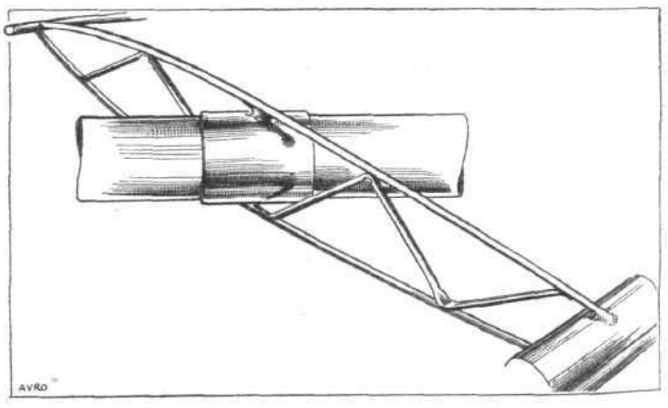
first, as anyone naturally would be who was without practical experience of welding work as used by Fokkers, and who had held the usual British view of welding. It is significant that both these gentlemen appear to have become thoroughly " converted " and that they are now very enthusiastic about welding.

Certainly one forms the impression, on walking through the works, that the welders engaged upon the production of Avro " Five " and Avro " Ten " fuselages are remarkably skilled in the work, and the quality of the welded joints appeared to be excellent. It must not be supposed that Messrs. Chadwick and Dobson have been content to adhere blindly to every last detail of the Fokker prototype. Where improvements have seemed possible they have been incorporated. We have not the space here to refer in detail to the construction of an Avro " Ten," but one item appeared to stand out as something out of the ordinary, and consequently this has been illustrated in some of the accompanying sketches. We refer to the tubular ring used for supporting the engines.

This tubular ring is produced in the following manner : First a piece of straight steel tubing of the appropriate length is cut off and bent to a circular shape, the two ends being butt-welded together. A number of brackets, of the shape shown in one of our sketches, are then welded to the ring at regular intervals. The exact placing of the brackets is not important, as will be explained presently. A form of jig is used in welding the brackets on to the circular tube. When all the brackets have been welded in place, the engine ring is surfaced so as to ensure that the flat faces of all the brackets present the necessary flat surfaces. The ring is then removed and placed in another jig, in which the holes are drilled in the brackets. It will be appreciated that the actual placing of the brackets around the ring does not call for great accuracy. If the holes drilled, accurately located by the last jig, do not fall exactly centrally on each bracket, well it does not matter. The holes themselves are accurately located, which is all that is necessary.

One could quote other instances of clever production methods that have been evolved, one suspects largely by Mr. Dobson, but the engine ring will serve as a typical example.

This is not intended as a detailed description of the Avro " Ten," which was dealt with fairly fully in our Show issue of July 11. It may be of convenience, however, if we recall briefly that the Avro " Ten " is a ten-seater (8 passengers, pilot and engineer or wireless operator) fitted with three Armstrong-Siddeley " Lynx " engines. The machine has an extremely comfortable cabin, and such modern equipment as independently-operated wheel brakes. The main dimensions are : Length, 47 ft. 6 in. ; wing span, 71 ft. 3 in. ; wing area, 772 sq. ft. ; tare weight, 6,280 lbs. Normal gross weight, 9,920 lbs. Maximum gross weight, 10,600 lbs. Full speed, 115 m.p.h. ; cruising speed, 100 m.p.h.



AVRO WELDED CONSTRUCTION : In the tail plane use is made of internal diagonal tubular struts of high-tensile steel. To avoid welding direct to this, mild-steel sleeves are used, as shown. The sketch also illustrates the welded tube tailplane tibs, the web being formed of continuous tubes welded to the flange booms. (FLIGHT *Sketch.*)

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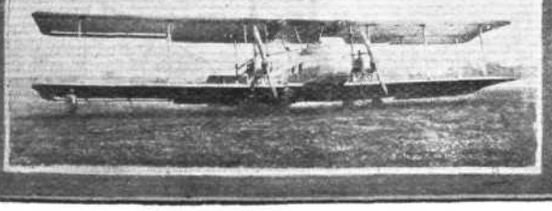
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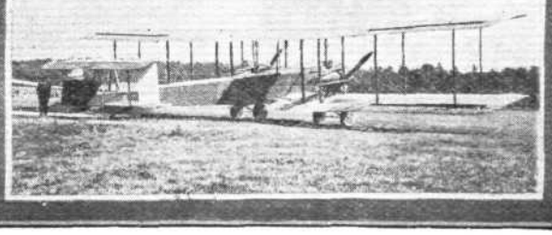
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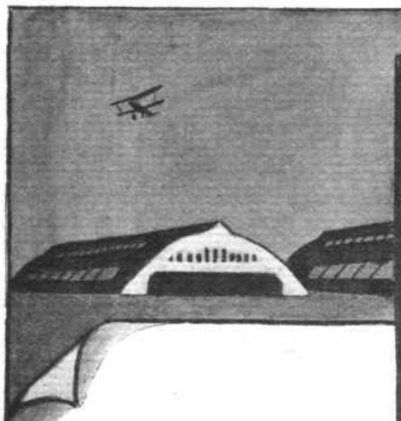
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Vickers "Victoria" Troop Carrier.



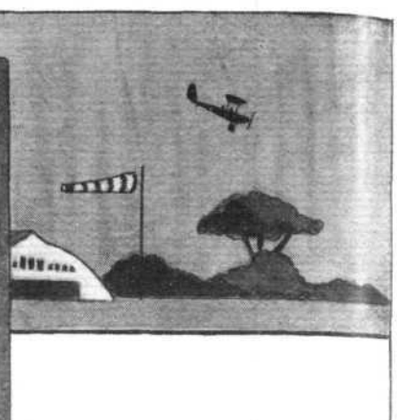
Vickers "Virginia X" Bomber.





Extract from the "Times Engineering Supplement," 9.11.29

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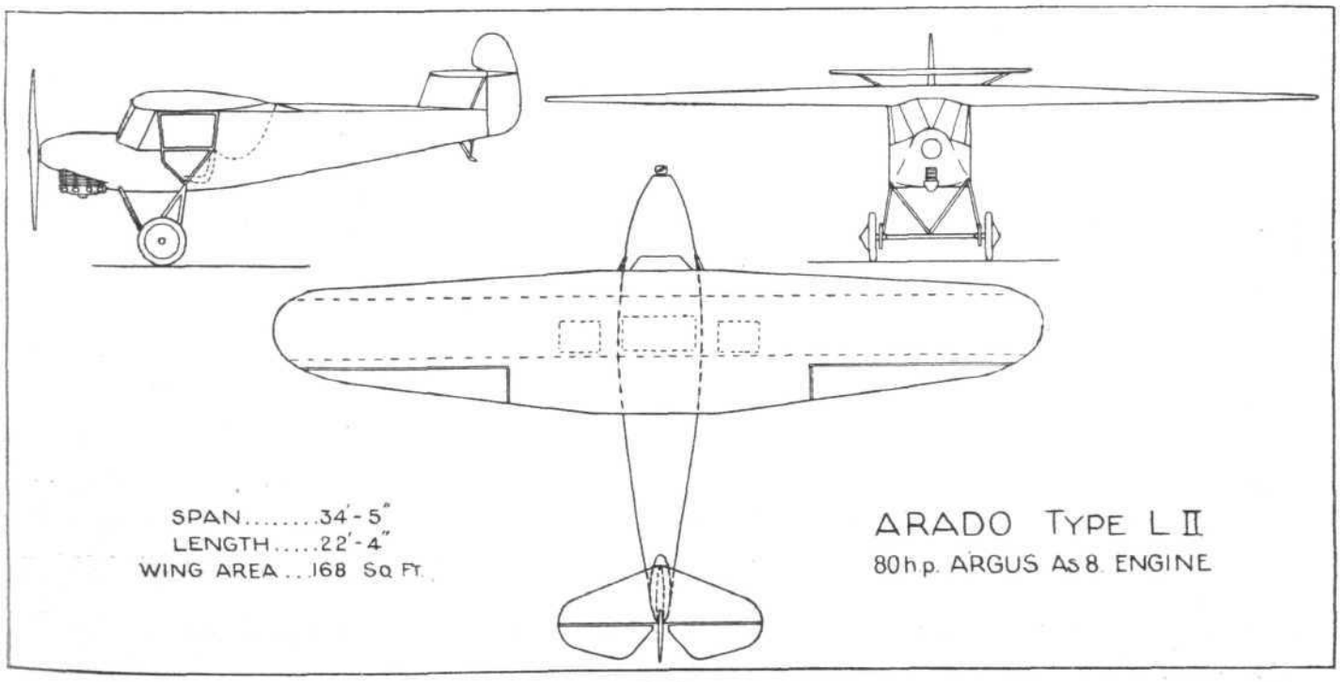
First German Light Aeroplane to be Designed for Inverted Argus.

ALTHOUGH the inverted aero engine is no novelty, a German firm having produced engines of this type long before the war 1914-18, the type has never hitherto become really popular. It is probably no secret that the makers of British light aeroplane engines have been experimenting with the inverted type of engine, and could, did the demand exist, put such engines into production at very short notice. We believe we are right in stating that the chief argument used against the inverted "in-line" engine is that with its cylinders hanging down from the nose of the fuselage, there is considerable likelihood of damage if the aircraft turns over on the ground, or even if it merely "stands on its nose." Probably this criticism is quite justified. There are many cases on record in which the machine turned up on its nose, or the undercarriage collapsed and let the machine down on to the ground, the only damage being, perhaps, a broken or bent propeller. The engine was undamaged because the machine "slithered" along on the crankcase, which was strong enough to stand this treatment. A cylinder head, particularly that of the front cylinder, would doubtless have been rather badly damaged.

On the other hand, the radial type of engine has two or more of its cylinders projecting below the level of the fuselage, and the number of "casualties" to lower cylinders does not appear to be excessive. While thus the inverted in-line engine may be at a slight disadvantage as compared with the upright engine of the same type, it is no worse off than the radial engine in this particular respect, possibly a little better, and there is no denying the fact that a very fine forward view is attained when the engine is "turned upside down." It is held by some authorities that there is some difficulty in getting as good carburation with the engine inverted, although why this should be so is a little obscure.

Bearing in mind that a British aero engine firm was the first to produce the four-cylinder, in-line, air-cooled light aeroplane engine which is so popular at the present time, and that at least two firms could without doubt produce inverted versions very quickly, it has remained for the German "Argus" firm of Berlin-Reinickendorff to place on the market the first inverted four-cylinder, in-line air-cooled engine of 80 h.p. One of these engines was, it may be recollected, exhibited at the Olympia Aero Show last July. And the first German aircraft firm to design a machine specially for the inverted "Argus" engine is the Arado Handels-Gesellschaft, of Berlin, whose works are situated at Warnemünde.

The Arado L.II, or "Treff As," is a cantilever monoplane two-seater cabin machine, in which the pilot and passenger





The inverted "Argus" As 8 engine is here shown exposed and, on the right, as mounted and cowled-in on the Arado "Treff As."

are placed side-by-side. In aerodynamic design, the machine is fairly orthodox, although the high placing of the horizontal tail surfaces is unusual. It may be recollected that the original Koolhoven monoplane, now produced in this country by Mr. Desoutter, had its tail surfaces placed high. Although this placing made the machine delightfully indifferent to engine-on and engine-off conditions, it was, we believe, found that in starting it took some considerable time to get the tail up, thereby increasing the length of run required to "unstick." In the production type Mr. Desoutter has dropped the tail plane on to the top longerons. It would be interesting to know whether the same has been found in the Arado "Treff As." The ground angle is large, and one would expect the high tail position to reduce the effect of the slip stream.

Constructionally the Arado "Treff As" is of "mixed" type, with a wooden, ply-covered, one-piece wing, and welded steel tube fuselage. The wing structure consists of two main box spars and the usual lattice girder ribs, the plywood covering or planking extending to the rear spar only. The trailing edge portion is covered with fabric, with the exception of the ailerons, which are ply-wood planked. The tail surfaces are all of welded steel tube construction, fabric covered.

The photographs of the machine, and the notes sent to us by the Arado firm, indicate a "split" undercarriage, although the general arrangement drawings show the axle type. It is assumed that the machine was originally designed with the older type of undercarriage, but that before completion of the machine this was altered to the divided type. Springing is by rubber rings.

The Argus As 8 type engine is, as already stated, of the inverted type, and is neatly cowled in, covered with an aluminium cowling. A fireproof bulkhead separates the engine from the cabin, and the two petrol tanks, each of 55 litres (12·1 gallons) capacity, are mounted one on each side of the fuselage, inside the wings, between the main spars. This position, coupled with the inverted form of engine gives a large head of petrol, ample for direct gravity feed.

The seats inside the cabin are placed side by side, and in view of this fact the control stick is placed in the centre, where it can be reached by either occupant. There is a separate foot bar for each, so that school work can be carried out. It is claimed that this arrangement has many advantages for instructional flying in that it enables the pupil to see more clearly what the instructor is doing, and *vice versa*. Conversations, it is stated, can be quite easily carried out without telephones, and of course, no special flying clothes are necessary, owing to the enclosed cockpit.

A cellon windscreen composed of several panels protects the occupants against the slipstream. The sides are left open above the doors, so that in case of the forward screen becoming fogged, the pilot can lean out for landing. At the front corners of the openings in the sides there are small adjustable screens, which can be set to give a minimum of draught inside the cabin.

Behind the seats there is a luggage compartment in the form of a canvas satchel, while net racks in the cabin itself may be used for attaché cases, maps, etc.

The main characteristics of the Arado "Treff As" are :—Length overall, 6·81 m. (22 ft. 4 in.). Wing span, 10·5 m. (34 ft. 5 in.). Wing area, including ailerons, 15·62 sq. m. (168 sq. ft.). Height, 2·28 m. (7 ft. 6 in.).

The tare weight of the machine is 405 kgs. (890 lbs.). The load is made up as follows :—Pilot, 75 kgs. (165 lbs.) ; passenger, 75 kgs. (165 lbs.) ; fuel, 70 kgs. (155 lbs.) ; oil, 10 kgs. (22 lbs.) ; luggage, 35 kgs. (77 lbs.). Total load, 265 kgs. (584 lbs.). Total loaded weight, 670 kgs. (1,474 lbs.). Wing loading, 41·87 kgs./sq. m. (8·78 lbs./sq. ft.). Power loading, 8·37 kgs./h.p. (18·4 lbs./h.p.). The top speed at 3,300 ft. is given as 162 kms./h. (100 m.p.h.), and the climb to 3,300 ft. in 8 mins.

The Argus As 8 engine develops its rated power of 80 b.h.p. at the low speed of 1,400 r.p.m., so that the propeller efficiency should be very good.

London-India Air Mail

OWING to damage to Imperial Airways marine aircraft operating on the Mediterranean section of the London-India air service, mails are, until further notice, being carried via Cologne-Nuremberg-Vienna-Buda Pesth-Belgrade-Uskub-Salonika, instead of via Genoa, to Athens, whence the normal route to Karachi is followed. At present only mails will be carried, and the sea crossing between Salonika and Alexandria will be operated by Supermarine "Southampton" flying-boats lent by the Air Ministry. The England-bound mail now leaves Karachi on Tuesdays instead of Sundays.

Lecture Postponed

THE lecture before the Royal Aeronautical Society and Institute of Aeronautical Engineers by Senor de la Cierva on "Recent Work on the Autogiro," originally fixed for December 5 next, has been unavoidably postponed. The lecture will be delivered by Senor de la Cierva in the second half of the present session.

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Air — 1918 A Napier-engined D.H. aeroplane climbed to a height of 30,500 feet in 66 minutes. At this time no human being had ever soared so high.

1921 A Napier-engined Gloster aeroplane won the Aerial Derby. Speed 163.4 m.p.h.

1922 A Napier-engined Supermarine flying-boat regained the Schneider Trophy for Great Britain at a speed of 149 m.p.h.

1922 A Napier-engined Gloster aeroplane won the Aerial Derby. Speed 180 m.p.h.

1923 A Napier-engined Gloster aeroplane won the Aerial Derby. Speed 192.4 m.p.h.

1926 The first non-stop crossing of South Atlantic Ocean carried out by Commandante Franco flying a Dornier flying-boat with two Napier engines.

1927 Schneider Trophy won by a Napier-engined Supermarine-Napier seaplane flown by Flight-Lieut. S. N. Webster, A.F.C. Speed 281.669 m.p.h.

1928 Capt. H. S. Broad, flying D.H. Hound, fitted with Napier engine, secured three World's speed records whilst carrying loads of 500 and 1,000 kilogrammes.

1928 The greatest formation flight ever carried out was made with four Supermarine-Napier Southampton flying-boats, each fitted with two Napier engines. The machines flew from England to Australia, round Australia and back to Singapore, covering 180,800 engine miles without mechanical trouble.

1929 The first non-stop flight from England to India was carried out with a Fairey monoplane fitted with Napier engine. 4,130 miles in 50 hrs. 38 mins.

Land—1929 The highest speed ever attained on land was made by Major Sir Henry Segrave when he drove his Irving-Napier car over one mile at the amazing speed of 231.36 m.p.h.
Capt. Malcolm Campbell set up world's land speed records at Verneuk Pan with his Napier Arrol-Aster as follows :—over 5 miles, speed 211 m.p.h.; over 5 kilometres, speed 216.53 m.p.h. They both used Napier engines.

Water—1929 The world's motor-boat speed championship was won at Miami by Major Sir Henry Segrave, driving Sir Charles Wakefield's Napier-engined "Miss England."
Sir Henry Segrave at the Lido with the same boat made six runs over the measured mile, averaging a speed of 92.8 m.p.h.
At this meeting, competing against the best from Italy and America, Sir Henry Segrave won all trophies, including the Duke of Piedmont's cup and Count Volpi's cup.

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1. MAJOR DE HAVILLAND (Gipsy Moth)	1. CAPTAIN MILLER (D.H.9)
2. MR. HEATH (Western Australian D.H.50)	2. MAJOR DE HAVILLAND (Gipsy Moth)
3. CAPTAIN MILLER (D.H.9)	3. MR. CUNNINGHAM (Gipsy Moth)

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C.F.H.

BOOK REVIEW

"INTO THE BLUE"

"IN 1916 the average pilot knew, at most, a very little about flying. What he did know was only sufficient to whet his appetite.

"It was best so.

"Otherwise he might have been obsessed with theories and ideas, in those days a disastrous equipment to the novice in the art of flying."

Thus, in the very first sentence in his new book, "Into the Blue," published by Duckworth at 8*s*. 6*d*. net, does Capt. Norman Macmillan, M.C., A.F.C., state a great truth. The early-war pilot was better off without too much theoretical knowledge. If he got into a "dog fight" in which he frequently had to fling his machine about brutally, it was better that he should not know the sort of stresses he was imposing upon it. There are even those who hold that much the same applies to the present-day pilot. These people quote as a proof the fact that there are very few designers who are good pilots, such few as we do know of being the exceptions that prove the rule.

It is a somewhat curious thing that it should be left to the writer of a book on war-time flying to produce a work which, more than any we have read, arouses in the reader a desire to fly. No account of great flights made in civil aircraft has ever had the appeal which this tale of the experiences of a war-time pilot possesses. And yet the appeal of Macmillan's book is not a result of the military nature of the flying which it describes. In fact, it may almost be said to appeal to the reader in spite of its service atmosphere. This is probably due to the occasional glimpses which the author manages to introduce here and there of scenes and happenings incidental to the war-time pilot's "jobs of work," and which show Capt. Macmillan to be not only a keen observer (the expression not being used in the R.F.C. sense), but a philosopher and a writer of no mean rank.

Sometimes these little gems are in the form of a brief sentence. At others they assume verse form and reveal yet another side of the author which even his close friends might not have suspected.

The book begins with a few verses to "The Air Pilot," of which we quote the first :—

"Oh! songs are sung of the rolling main, songs that smack of the sea,
But sing me a song of the skyland, where the clouds go blowing free,
Where the breath of heaven goes rushing past to the tune of the engine's song,
And the skies are blue and the earth looks new as the aeroplane flies along. . . ."

Apart from his power to depict a scene so that it becomes live and real and vivid to the reader, Macmillan's book is remarkable for its quiet restraint. This will not be surprising to those who have the privilege of knowing the author, and is probably the secret of the remarkable strength of the narrative. As an example, take the account of the pilot of the C.F.S. who had set his heart on attaining a "zoom" of 1,000 ft., following a dive of 3,000 ft. He had managed a "zoom" of 800 ft., was asked to desist, and promised to do so when he had attained his 1,000 ft. "Next morning the tail came off his plane." That is all. No elaboration, no attempt at carrying the incident farther. And yet, to those familiar with flying the whole story is adequately told by that one sentence.

The quiet humour of the author finds expression in all sorts of unexpected directions, and sometimes is so subtle as almost to escape notice. For instance, "There [at one of the schools of military aeronautics] he became acquainted with the mysteries of rigging and the mechanism of internal-combustion aero-engines, learned to read maps, struggled with Morse and that instrument of torture to sensitive souls, the buzzer. With these and many other subjects—electricity, magnetism, meteorology, codes, magnetos, carburation, lubrication (of engines)—he lived his days and dreamed his nights for a month."

"Into the Blue" tells of the life of the author from the time he joined the School at Netheravon to the end of the war, and naturally much of the book is devoted to the work of his own squadron (No. 45). Macmillan's account of his first solo flight is exceedingly well done, and the following sentences from it will recall to every pilot his own experience on the same occasion :—

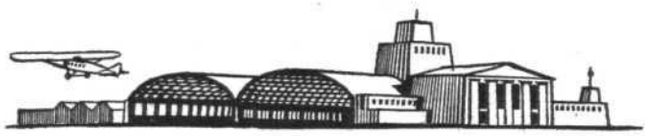
"For three-quarters of an hour I flew around, unconscious of anything save the joy of flying, of controlling the live apparatus that bore me along on outstretched wings and then I looked down at the tarmac. There I saw the khaki-clad figures of my fellow pupils; my instructor watching the bus as I flew overhead; the mechanics at the shed door speculating whether I was going to present them with another repair job. Suddenly I felt acutely alone. I wanted to get back amongst them, feel the friendliness of their presence, chat to them, smoke a cigarette with them, know that I could land an aeroplane, that I was its master and it my servant. This feeling was not panic, it was something different, a sense of isolation which had to be overcome. . . ."

At the Central Flying School, Macmillan had an instructor who lacked confidence. Always his hands and feet were on the controls when he was instructing a pupil, but he would never admit the fact. It is characteristic of the author that he decided to put it to the test. On an instruction flight he (Macmillan) left the controls entirely alone, and the instructor finally shut off the engine and told him that he was flying well that morning! Macmillan was then told to land. How he did so is best told in his own words: "We glided down, and still I waited. The stick came back. We bumped. The stick moved fore and aft. We bumped again. As we taxied in after a third bump, the instructor shouted from the rear cockpit. 'That was a bad landing.' We got out on the tarmac, and I turned to the instructor. 'If it was a bad landing, then blame yourself, for you made it. You said I was flying well this morning, and yet I haven't once touched the controls since I left the ground."

Joining No. 45 Squadron in France, Macmillan, as he expresses it, "from the comparative pinnacle of a finished soloist with 'wings up' at a flying school in England, found himself debased to the abysmal state of the most newly-joined pilot in a fighting squadron in France." From this point onwards, the book deals chiefly with the work of No. 45 Squadron, and only incidentally with the part taken in that work by the author. It is characteristic of him that when he is compelled to write of his own work, he funks it, and resorts to quotations from the Squadron records and reports. This section of the book deals fairly fully with the work done by the squadron, first on the old Sopwith one-and-a-half strutters, then gradual transition to the Camels, and the final adoption of this type exclusively. On the supply of machines at a certain stage of the war, delayed by strikes at home, the author maintains the same quiet restraint which characterizes all his work. "It is problematical," he says, "if the workers at home realised in full measure that a strike on their part for any cause—say, higher wages—meant the certain toll of brave men's lives. They may have got more money, but it was money that was bought by the lives of others, money that was tainted by the tears of the mothers of men."

After good work in France, No. 45 Squadron was transferred to the Italian Front, and several chapters of the book deal with its work there. The Squadron was disbanded on December 31, 1919, and passed out of existence, until it was reformed at Helwan, in Egypt, in April, 1921. "It is the new Squadron's proud heritage that, of all the wartime Sopwith-equipped Squadrons, No. 45 holds the record for the greatest number of enemy 'planes brought down." The last three chapters of the book relate the varied experiences of the author after he was ordered home, as a result of an accident which nearly lost him his sight, and which parted him from the Squadron which he so obviously (and naturally) loved. His work as an instructor apparently rather bored him, but as was to be expected of a man of his calibre, Macmillan did the distasteful work to the best of his ability. When he got the news of his brother's death in France, Macmillan wanted to get back. "I applied again and again for permission," he says, "but always I was refused. All I could do was to put into the hands and feet and brains of those boys who came to me for final training, all that I knew to help them to go out to France to shoot, and not be shot."

Thank you "Mac." In "Into the Blue," you have given us a book which no wartime pilot can read without living his own life over again, and which no youth, if he has any red blood in his veins, can read without wanting to get into the air. And to those of us who are neither wartime pilots nor, unfortunately, modern youths, the book is a monument to the spirit which inspired the R.F.C. and, later, the R.A.F. during the war, and a reminder that romance is not yet dead. That it can still be found by those who look for it and have the gift of recognizing it when they see it. Nowhere more readily so than in the air.



AIR TRANSPORT

AIRPORTS

By FRANCIS WOOD, M.Inst.C.E.

(Borough Engineer and Surveyor to the County Borough of Blackpool)

(*Concluded from page* 1190)

APPENDIX

RULES FOR AN AIRPORT

Field Rules

General

1. All visiting pilots landing on the airport shall report immediately to the administration office to register the following information: Licence number and model of 'plane; owner of 'plane; pilot of 'plane and his licence number; time of arrival; number of crew; number of passengers; and such other information as may be required for record purposes.

2. Immediately prior to his departure each visiting pilot shall report to the office and check out.

3. The airport will be open to render service from daylight to dark.

4. Handling of the public in attendance at the airport will be at all times under the control of the field manager.

5. Unhoused aircraft shall be parked in the space allotted therefor and shall be firmly secured to the ground by ropes or stakes or otherwise, when left unattended overnight or during weather conditions which indicate the necessity for it. If this is not done, owners will be held accountable for any damage to their own or other property.

6. Wrecked aircraft and the parts thereof shall be promptly removed from the landing area.

7. Payment for storage, repairs, supplies, etc., shall be made before clearance will be granted unless other satisfactory arrangements have been made.

8. No person, firm or corporation shall engage in the sale of refreshments or of any other commodity or service within the confines of the airport without previously having obtained from the Corporation a permit to do so and having paid or made satisfactory arrangements to pay such fees or other sums of money as the said Corporation may determine for such privilege.

9. Any parts of the landing area temporarily unsafe for landing or which are not available for any cause, will be clearly marked with red flags of sufficient size to draw attention readily, and so placed as to show the boundary of the dangerous area. In case the airport is lighted for night operation, the boundary of such dangerous area will be clearly marked throughout the hours of the night (from sunset until sunrise) either with electric light (with weather-proof fittings) or with red lanterns.

Flying Rules

1. The direction of aerial traffic around the outside of the airport shall be counter-clockwise.

2. Aircraft approaching the airport shall fall in the line of traffic and skirt the field until a point has been reached where a landing can be made (as nearly as surface conditions will permit) into the wind, and if practicable with a straight glide at least 1,000 ft. from the border of the landing area.

3. Pilots shall circle the field not less than 180° before landing. Before landing at night all pilots shall circle the field not less than 270°.

4. The landing aeroplane has the right of way and shall land so that any aeroplane landing ahead of it or about to take off is at least 300 ft. away.

5. On taking off, aeroplanes shall be beyond the edge of the field before making the first turn.

6. Aeroplanes shall not take off over hangars, buildings, automobile parking areas or other obstacles, or over groups of spectators, unless strictly unavoidable.

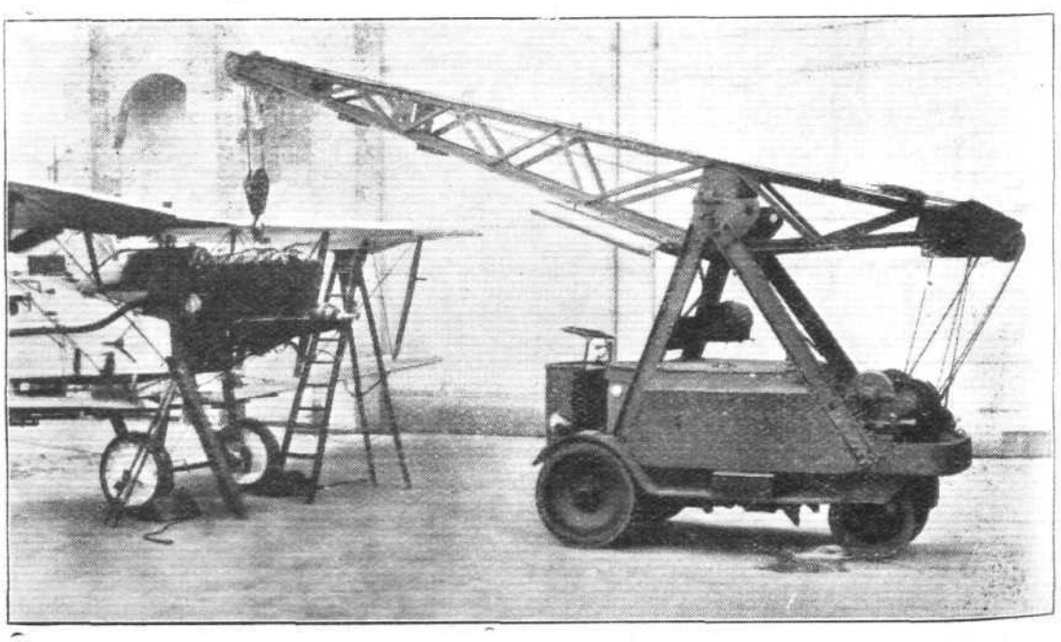
7. Aeroplanes shall land and take off a safe distance from the hangars or the parking places of aircraft.

8. Except in the case of scheduled operators, the responsibility for deciding whether weather conditions permit the safe operation of aircraft will rest with the operator of the machine.

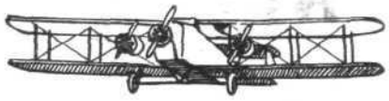
9. Aeroplanes when carrying Royal Mail or operating on regular scheduled lines, when recognised, shall be given the right of way when landing or taking off. This does not apply to aircraft in distress.

10. 'Planes taking off shall start: (*a*) The take-off from the extreme leeward side of the landing area; (*b*) the landing and take-off from the extreme leeward side possible of taxi-ing planes; (*c*) 'planes shall be required to taxi as little as possible consistent with (*a*) and (*b*).

11. Upon landing, a pilot shall assure himself that there is no danger of collision with aircraft taking off or landing before taxi-ing to the line. All aircraft shall be taxied at a



This is one of Ransomes and Rapier's, Ltd., 2-ton petrol-electric mobile cranes, which, as the illustration shows, is very directly applied for airport purposes, such as the lifting of an engine from the engine mounting or replacing it. This can be done not only quickly but without ever endangering any other parts of the machine, which is so liable to occur with rough shop methods of removing an engine. With this Ransome and Rapier crane there is very precise control of the hoist and derrick motions.



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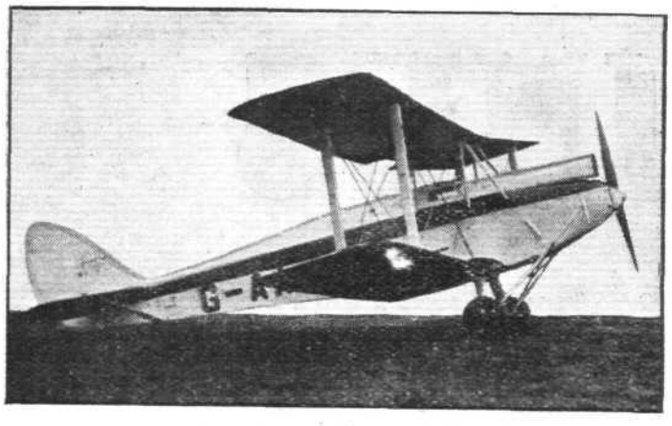
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G=EBTD. (*The Reliability Tour Moth.*) The identical Gipsy Moth which has just concluded the record total of 600 flying hours with completely sealed engine. Aircraft and engine now completely overhauled and reconditioned throughout. Telephones fitted. C. of A. for 12 months. A chance to acquire a machine which has made flying history. Price £425.

G=AARE. Used for tests only. Total flying time 4 hours. Fitted with slots and telephones. This machine is practically brand new and for sale at £665.

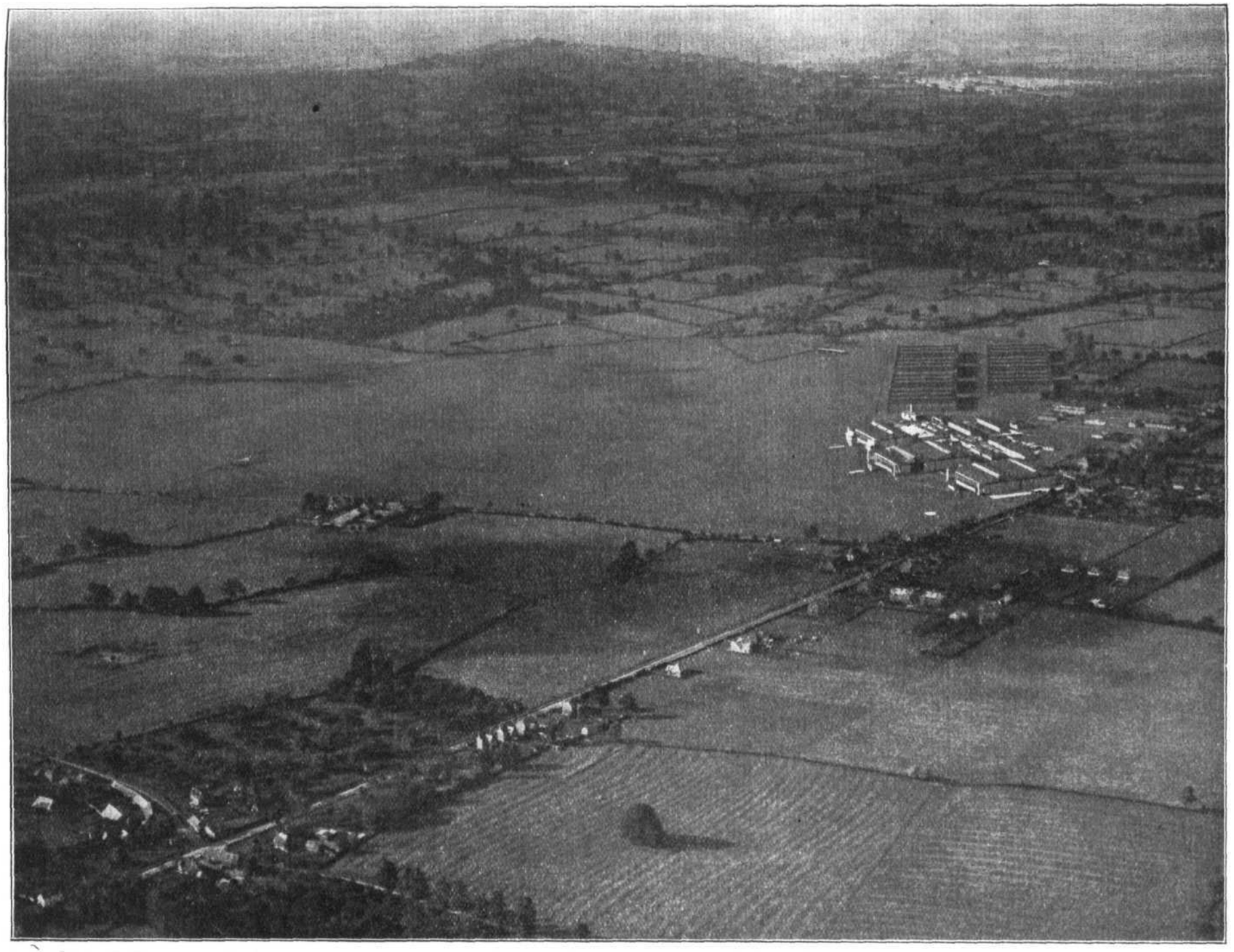
G=AALJ. Used few demonstration flights only, and as new Total flying time less than 3 hours. Completely equipped, including such extras as Slots, Slot Locking Device, D.H. Harness in both cockpits, Compass, Telephones. Special price £700.

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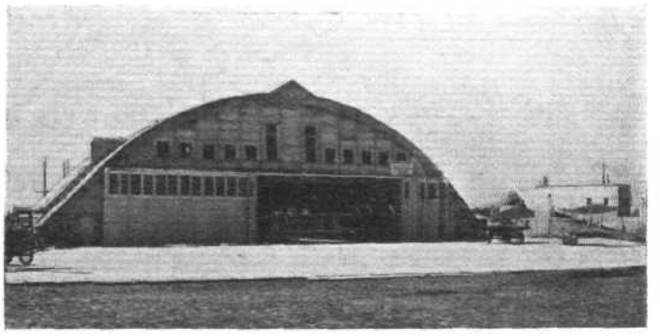
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A Potential Municipal Airport: The Gloster Aircraft Company's aerodrome and works at Brockworth, Gloucestershire.
(FLIGHT *Photo.*)



An English Hangar : A reinforced concrete hangar, constructed by A. Jackaman and Son, and fitted with Esavian sliding doors, at Heston Airpark

slow and reasonable speed, particularly in the vicinity of the hangars. When in the vicinity of the hangars, unless provided with adequate brakes, an attendant should be at each wing whenever practicable.

12. No aeroplane shall be taxied into and out of hangars.

13. When there is no wind, aeroplanes shall land and take-off in a north-westerly direction.

Running Engines

1. Blocks shall always be placed in front of the wheels before starting the engine, or engines, unless the aeroplane is provided with thoroughly adequate brakes. Blocks should be equipped with ropes or other suitable means of pulling them.

2. No engine shall be started or run unless a competent pilot or competent mechanic is in the cockpit attending the controls.

3. No aircraft shall be fuelled while the engine is running.

4. In starting an aircraft engine the customary procedure shall be used by the person operating the starting device, and the person at the engine controls. All challenges and signals between the former and the latter shall be clearly understood and so indicated by repetition before action is taken by either.

5. Aircraft shall be started and warmed up only in the places designated for such purposes by the airport authorities. At no time shall engines be tuned up in such position that hangars, shops, or other buildings, or any group of people in the observation area, shall come in the path of the propeller stream. Engines shall not be started or run inside the hangar.

Instruction Flying, Test Flying, Commercial Flying

1. On any test flight of aircraft, the personnel making such a flight shall be limited to the number necessary properly to perform the required test. At no time shall passengers be carried on such flights as ballast.

2. Student instruction or soloing shall not be permitted on this airport unless authorized, the responsibility to be with the instructor.

------- AIRPORT.

MONTHLY REPORT OF SUPERVISOR.

	£	s	d
Landing Fees			
Hangar Fees			
Monthly Fees			
Rentals...			
Petrol			
Oil			
Grease			
Spectators			
Car Park			
Total			

	No.
Passengers.	
Distance Departures.	
" Landings.	
Local Flights.	
Distance Flights.	
Mail.	
Freight.	

Observations:-

Unusual events _____

Accidents _____

Any matter of importance _____

Remarks (if any) _____

Date _____

.....

Supervisor.

3. No aircraft shall be operated from this field for carrying passengers or express taxi service for hire or any other commercial purpose without a permit from the Corporation.

Parking Area, Dead Line, etc.

1. The 'plane line will be determined by the airport manager.

2. A dead line will also be designated by the airport manager, and no person, excepting a pilot or mechanic attached to the airport or employed by the owner of a 'plane, or an operator on said airport, or an owner of such 'plane, or such an operator, shall cross the dead line or enter upon the flying field unless he is to participate in a flight. If

------ AIRPORT.

RECORD OF SALES.

Date.	Petrol.				Oil.			Grease and Waste.		Rentals.			Name of Purchaser.
	Aviation.	No.1.	Comm.	Benzole.						£	s	d	

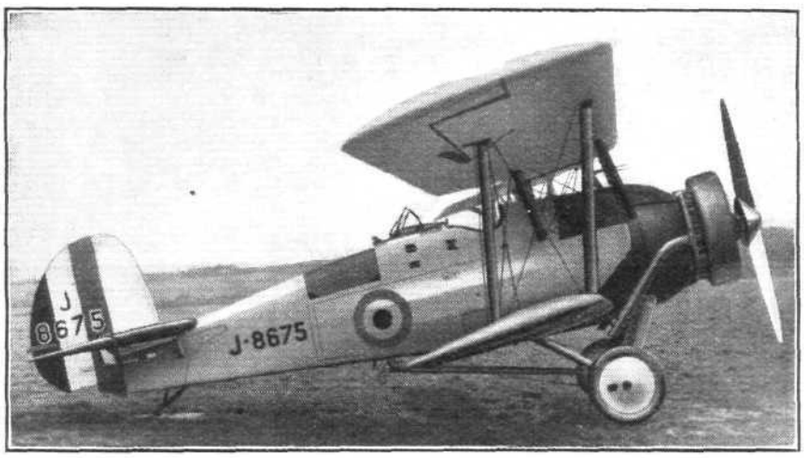
------- AIRPORT.

GREASE AND WASTE, ETC.

Date.	Oil.			Grease.									
	Stock.	Sold.	Recd. £ s d	Stock.	Sold.	Recd. £ s d	Stock.	Sold.	Recd. £ s d	Stock.	Sold.	Recd. £ s d	Total Sales. £ s d

Specimen Report Sheets (above and left) suitable for use in the operation of an airport.

ARMSTRONG WHITWORTH
AIRCRAFT



THE ALL-STEEL ATLAS
(ON WHEELS, FLOATS OR SKIS)

THE all-steel Atlas is the best aircraft for land or sea reconnaissance.

It is the standard Army Co-operation two-seater of the Royal Air Force.

Its steel construction accounts for its unrivalled durability and ease of maintenance. Fitted with the world-famous Armstrong Siddeley Jaguar engine (plain or geared type), its speed, climb and ceiling fulfil the severest Service requirements. It is produced on the grand scale by the best equipped aircraft works in Europe.

PERFORMANCE FIGURES

ATLAS WITH JAGUAR ENGINE AND TOWNEND RING

Fuel, 75 gallons (337 litres). Oil, 7 gallons (32 litres). Military Load, 880 lbs. (400 kgs.)

	Plain Engine.	Geared Engine
Approx. total weight	4000 lbs.	4115 lbs.
	1820 kgs.	1870 kgs.
Speed at ground level	143.5 m.p.h.	149 m.p.h.
	231 km.p.h.	240 km.p.h.
„ „ 5000 ft.	139.5 m.p.h.	145 m.p.h.
„ „ 10000 ft.	134 m.p.h.	140 m.p.h.
„ „ 15000 ft.	125 m.p.h.	131 m.p.h.
„ „ 1000 metres	226 km.p.h.	236 km.p.h.
„ „ 3000 metres	216 km.p.h.	225 km.p.h.
„ „ 5000 metres	193 km.p.h.	204 km.p.h.

	Plain Engine.	Geared Engine
Time to 5000 ft.	5.25 minutes	4.25 minutes
„ „ 10000 ft.	12.5 „	10.5 „
„ „ 15000 ft.	26 „	21.75 „
„ „ 1000 mtrs.	3.5 „	2.5 „
„ „ 3000 „	12.5 „	10.25 „
„ „ 5000 „	34 „	27.5 „
Absolute Ceiling	19000 ft.	19100 ft.
	5800 metres	5830 metres
Service Ceiling	17300 ft.	17700 ft.
	5280 metres	5400 metres

Maximum allowable R.P.M. 2200. Normal R.P.M. 2000

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ROLLS-ROYCE
AERO ENGINES

THE ADVANTAGES OF WATER-COOLING

5. Heat Capacity

It is impossible to damage the water-cooled engine by over-heating during times when it is necessary to run at full throttle in the air or when running-up on the ground. Also, at the end of a long glide, sufficient heat can be stored in the cooling system and carburetter jackets so as to ensure certain acceleration when the throttle is re-opened.

ROLLS-ROYCE F and H
12 Cylinder Vee Water cooled Engines

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14-15 Conduit Street, London W.1
Telegrams Rolhead Piccy London
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------- AIRPORT.

RENTALS.

Owner.	Type of Plane.	Distinguishing Mark.	Received. £ s d

------- AIRPORT

OIL.

Date.	Meter Reading. Gallons.	Gallons sold.	Gallons on hand.	Gallons Received.	Tank Check.	Total Sales. £ s d

------- AIRPORT.

PETROL (COMMERCIAL ?).

Daily Record. Monthly Report.

Date.	Meter Reading. Morning	Night.	Gallons Sold.	Gallons Received.	Gallons on hand.	Tank Check.	Total Sales. £ s d

------- AIRPORT.

PLANES IN HANGARS.

Date.	No. or Distinctive Mark.	Type.								Total.

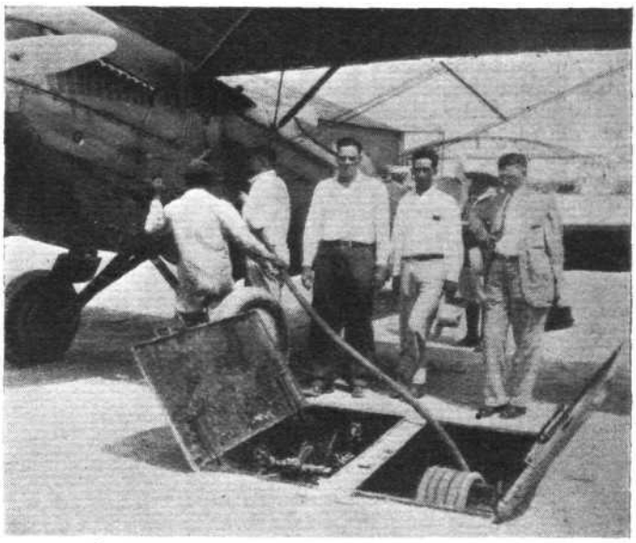
such person is to participate in a flight he shall not cross the dead line until the 'plane in which he is to fly has come to a full stop, and the pilot thereof has signalled that he is ready. Such person shall, upon alighting from the 'plane, leave the field by the shortest possible route.

3. The dead line will be indicated by suitable markers, and may be changed from time to time as conditions require.

4. Parking spaces and drives are provided, and automobiles and all other vehicles shall stay within these limits, with the exception of motor vehicles specially authorised.

Hangars

1. No aircraft is to enter hangar except with the petrol supply tank turned off.



Airport Fuelling : An underground Bowser installation, as used at Brownsville, U.S.A

2. No aeroplane shall be fuelled or drained, while the engine is running, or while in hangars or other enclosed space.

3. No person shall smoke in any hangar or any room or building on the airport, except in offices, waiting rooms, or buidings, in which smoking is specifically authorised.

4. The heating of oil shall be restricted to steam, hot water, or approved electric heaters.

5. All heating equipment and fuel-burning appliances installed on the airport shall be in accordance with the requirements of insurance company.

6. The cleaning of motor parts or other parts of the aeroplane should preferably be with non-flammable liquids, If volatile flammable liquids are employed for this purpose, cleaning operations shall be carried on in the open air or in a separate room located in the repair shop sections, and separated therefrom by fire resistive partitions and complying with the requirements of the insurance company.

7. Repairs on storage floors of hangars shall be limited to inspections and replacements of parts and repairs incident thereto, provided such repairs do not involve appliances using open flames or highly-heated parts other than electric soldering irons.

8. The process of " doping " shall preferably be carried on in a separate, detached, incombustible, sprinklered room located in the repair shop section of the hangar and constructed in accordance with the requirements of the insurance company.

9. All rags, waste, or other materials used in cleaning aircraft or motors shall be placed in the metal receptacles provided for same, and the metal receptacles kept tightly covered at all times.

------- AIRPORT.

MONTHLY OPERATIONS REPORT.

Date.	Local Pleasure Flights.			Taxi Flights.			Passenger Air Line Flights.			Mail Planes.		Freight.		Demonstration Flights.			Unclassified.			Total.		
	Passengers.	Landings.	Departures.	Passengers.	Landings.	Departures.	Passengers.	Landings.	Departures.	Landings.	Departures.	Weight.	Landings.	Passengers.	Landings.	Departures.	Passengers.	Landings.	Departures.	Passengers.	Landings.	Departures.

------ AIRPORT.

RECORD OF PILOTS & MACHINES.

Date.	Name of Pilot.	Address.	Name & Address of Owner.	Description of Aeroplane.	No. of Crew.	No. of Passengers.	Date of Arrival.	Date of Departure.	Hanger fee.	Landing fee.

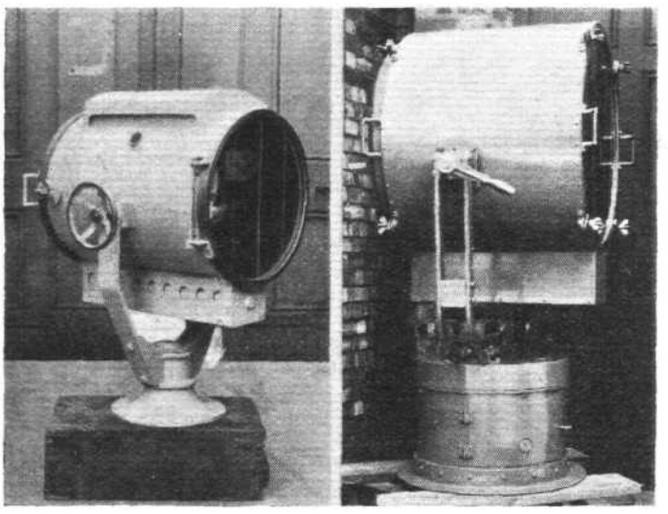
Two more examples (above and right) of Airport Report Sheets.

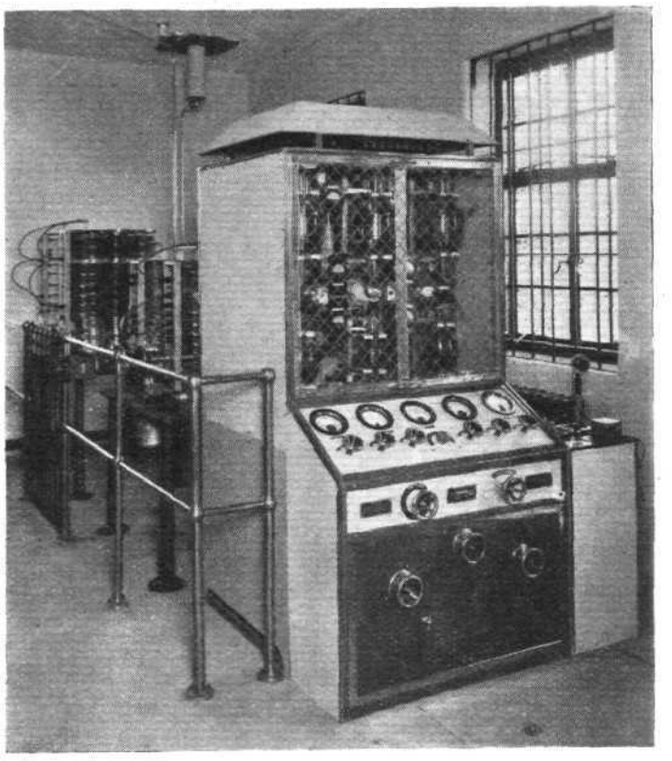
10. Drip pans shall be p aced under motors and kept clean at all times.

11. All empty oil, paint, and varnish cans, bottles, or other containers shall be immediately removed from the premises, and not allowed to remain on floor or wall stringers.

12. Petrol, benzol, kerosene, ethyl, ether, or other inflammable liquids shall not be kept in, or stored in hangars.

13. No compressed gas cylinders or flasks shall be stored in hangars.





AIRPORT "ACCESSORIES": On the left two aerodrome beacons produced by the London Electric Firm, and on the right a Marconi 3-kw. ground wireless transmitter, installed at the London Airport, Croydon.

14. Automobiles are forbidden to enter hangars, and hangar entrances shall be kept clear at all times.

15. No boxes, crates, rubbish, papers, or litter of any kind shall be permitted to be stored in or about the hangars.

16. All buildings on the airport shall be provided with first-aid and fire apparatus as required by the insurance company.

Regulations

Operators wishing to obtain hangar lease or commercial permit must file application to the Corporation

The sale of fuel, oil, supplies, or carrying on of any form of business is prohibited on the airport without a permit.

Penalties

Any person or persons violating any of these rules, or refusing to comply therewith, may be promptly removed or ejected from the airport and may be deprived of any further use of the airport and its facilities, until such time as the interests of the borough and public are deemed to be properly safeguarded.

APPENDIX (2)

General

Aeroplanes.—The overall dimensions vary with the type of the machines, the span over the wings is from 30 ft. to 91 ft.; the lengths from 24 ft. to 65 ft., and height from 9 ft. to 20 ft. The area covered from 720 to 9,215 sq. ft.

Airports (Established)

There are in U.S.A. 286 municipal airports; 340 commercial and private airports; 256 intermediate or department of commerce fields; 79 military airports; 326 marked auxiliary fields, 890 proposed airports

In Germany there are 250 established airports.

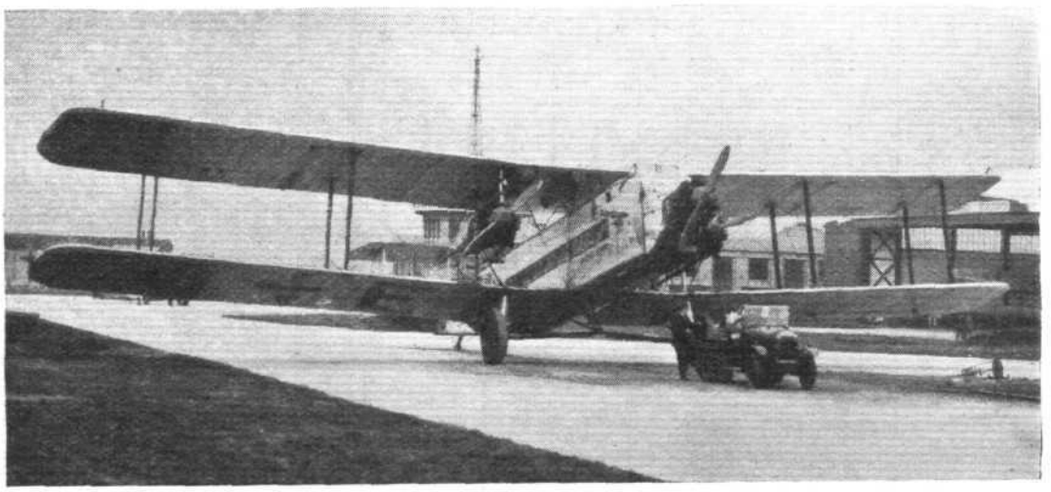
In England there are 5 Government airports; 45 R.A.F. airports; 8 municipal airports; 7 commercial and private airports; 42 proposed municipal airports.

The established airports (8) are at Blackpool, Manchester, Nottingham, Hull, Stoke-on-Trent, Carlisle, Bristol and Plymouth.

The commercial or private airports are at Heston, Hanworth Park, Reading (Woodley), Romford (Maylands) Southport (Hesketh Park Foreshore), Teignmouth (Haldon,) and Shoreham-by-Sea.

Airports (Proposed)

The proposed municipal airports are at Brampstoke, Bognor, Bournemouth, Birmingham, Bradford, Brighton, Burton, Derby, Gloucester, Hastings, Hereford, Ipswich, Kidderminster, Leeds, Leicester, Littlehampton, Liverpool, Maidstone, Morecambe, Newton Abbot, Plymouth, Rotherham, Scarborough, Sheffield, Skegness, Southampton, West Bromwich, Wolverhampton, Worcester, Worthing, York, Middlesbrough, Aberdeen, Cardiff, Belfast, Doncaster, Swansea, Walsall, Crewe, Chorley and Gateshead.



A Caterpillar Tractor is a useful airport "accessory," which can be employed for hauling the aircraft from the aerodrome to the hangar, and vice versa, as shown above.

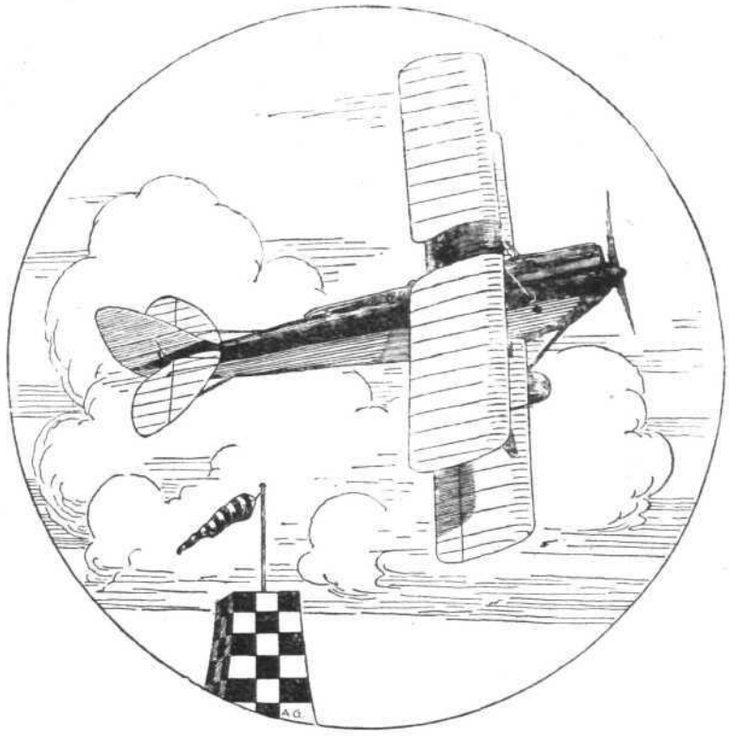
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DURABILITY
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EUROPEAN CIRCUIT AUG. 1929.

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CAPT. H. S. BROAD.



SYDNEY TO PERTH OCT. 1929.

FASTEST TIME D.H. MOTH.
Major DE HAVILLAND.

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DOPE

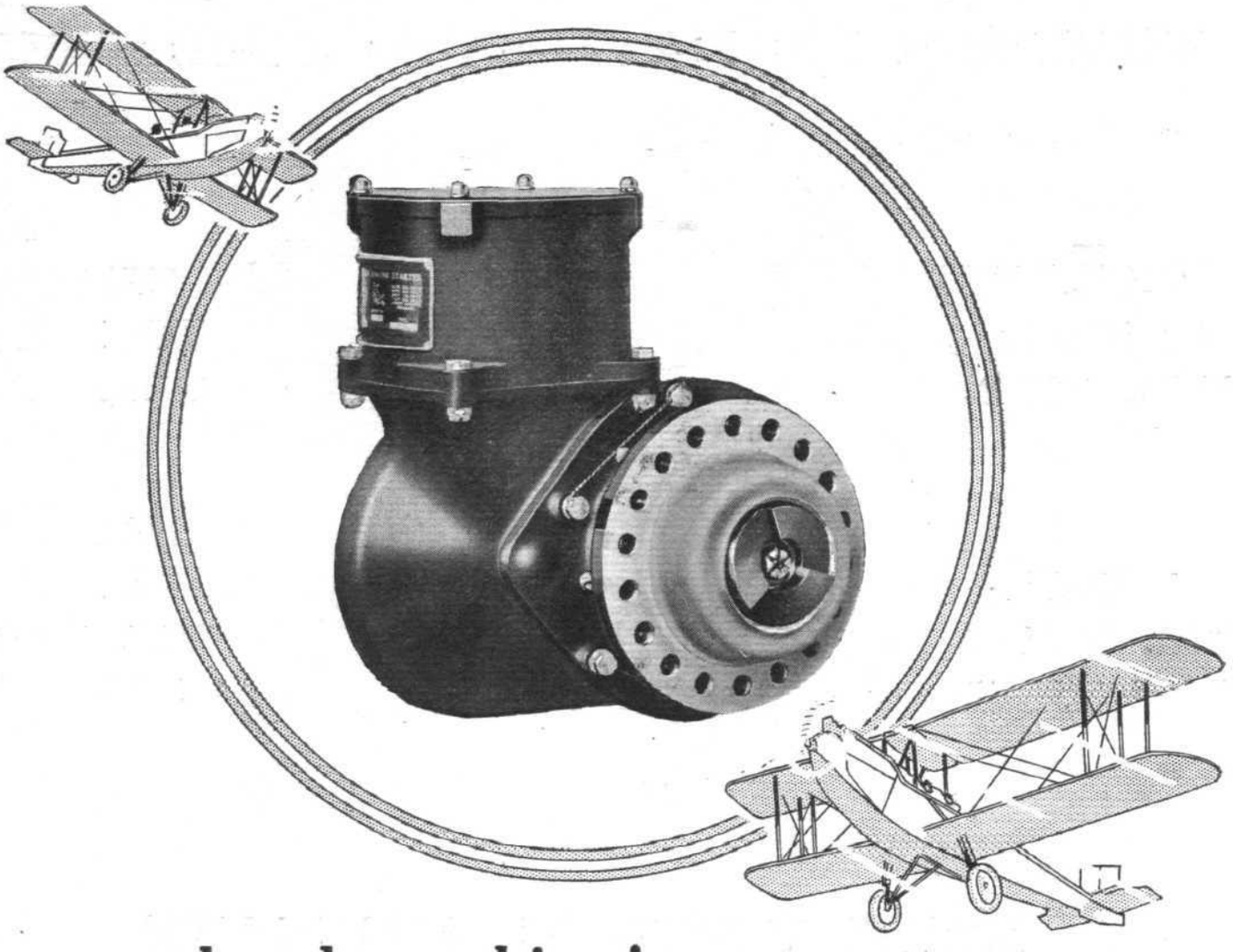
Factories:
Hendon (London, N.W.9).
New York (U.S.A.).
Milan (Italy).
Bremen (Germany).

TITANINE-EMAILLITE LTD., 175, PICCADILLY, LONDON, W.1.

Telephones:—
Gerrard 2312.
Regent 4728.
Telegrams & Cables:—
"Tetrafree, Piccy, London."

Save time by using the Air Mail.

B T-H Inertia Starters for Aero Engines



No more hand cranking!

Quick and convenient starting of aeroplane engines is effected by means of the B.T.H. Inertia Starter.

Of minimum weight, and made for hand or electric-motor operation (the latter pattern being arranged for control from the pilot's cockpit), these starters impart a high initial cranking speed to the engine—about 80 r.p.m.—starting the engine in about 5 seconds with motor operation, or 15 to 30 seconds with hand operation.

Made in five patterns to suit engines from 1,300 cub. ins. to 2,500 cub. ins.

The illustration shows a Hand Inertia Starter for Engines up to 2,500 cub. ins.

Full particulars will be supplied on application.

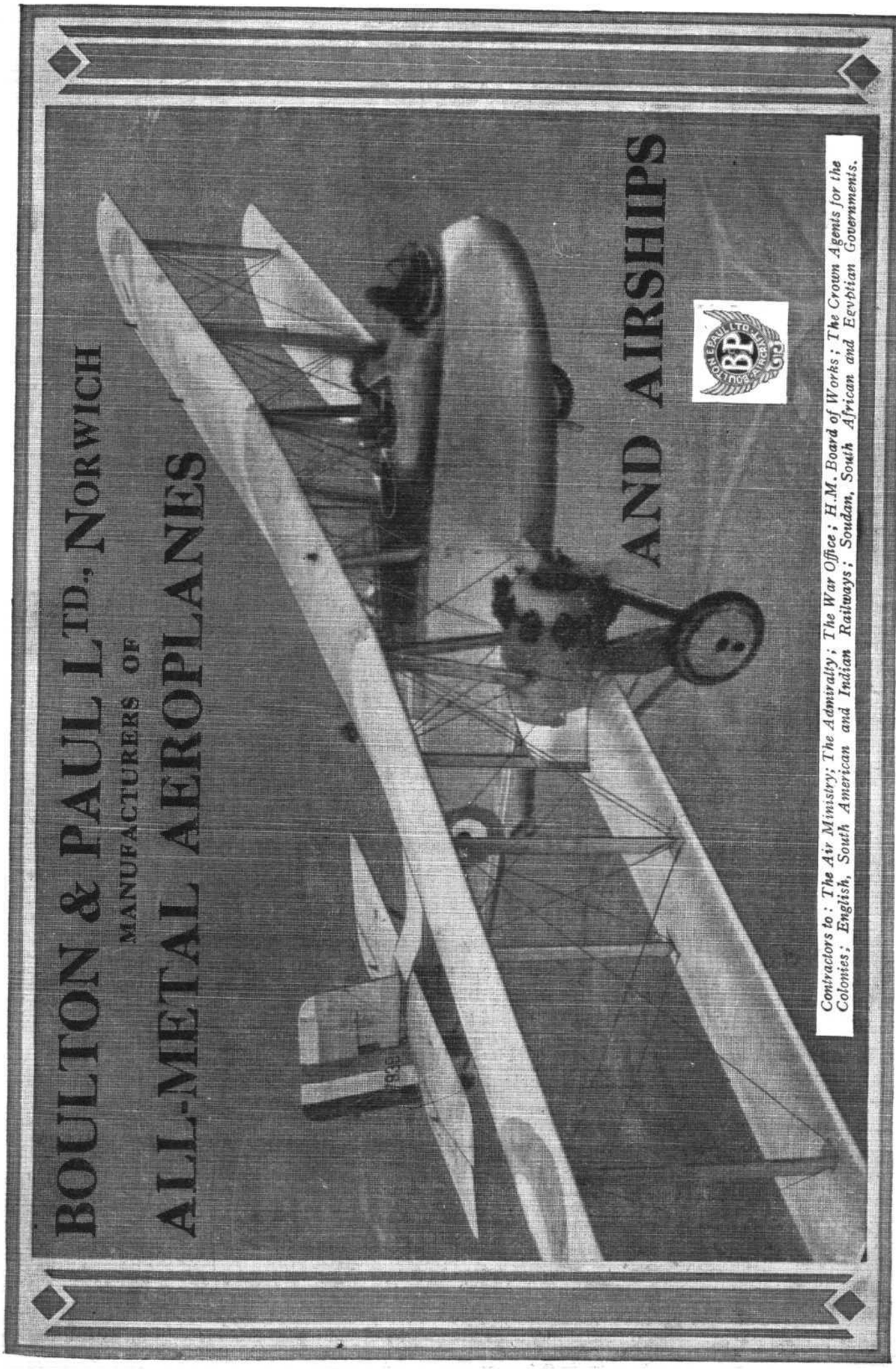
The British Thomson-Houston Co., Ltd.

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Alma Street :: :: :: Coventry

Works: Coventry, Rugby, Birmingham, Willesden and Chesterfield.

Kindly mention "Flight" when corresponding with advertisers.



["FLIGHT" Photograph.

Save time by using the Air Mail.

"Husun" Aperiodic Compass.



Type Av. 759 (No. 253 D.B.).

A compass in which a thin mica ring card has been added to the filaments. This is divided every degree, and is for direct reading on a lubber point. It is fitted with a domed or convex verge glass, which magnifies the card and "throws its image upwards" so that it can be read on the level of the eye. To overcome the slight drag introduced by the mica ring card the magnets have been made more powerful, so that its behaviour as an aperiodic compass is retained.

Dimensions: Height, $4\frac{7}{8}$". Width, $6\frac{5}{8}$". Weight, 86 ozs.

SMITH'S AIRCRAFT INSTRUMENTS

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AVIATION INSTRUMENT SPECIALISTS,

SOLE EXPORT DISTRIBUTORS FOR K.L.G. SPARKING PLUGS.

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CORRESPONDENCE

[The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.]

AIRPORT CONFERENCE

The Municipalities' Point of View

[2216] The Airport Conference, which was held on November 5, through the munificent generosity of Sir Charles Wakefield, who had placed its organisation in the hands of the Royal Aeronautical Society, has shown that there has been and is, a high appreciation of Sir Charles Wakefield's efforts to bring civil aviation within the British Isles to a better condition than now prevails, and by the attendance of so many delegates from all parts of the country it also indicates that there is a keen interest in the progress of aviation generally. There can be little doubt that the youth of this country is becoming more and more enthused with flying, and that Sir Alan Cobham, the numerous schools of aviation, and the flying clubs that are established have been, and are doing a great work in this direction.

There is equally little doubt that the members of local authorities came to the conference in order to learn what they could from the various advocates, particularly as to what the installation of an airport involves, and generally as to any information that would be helpful to them.

Sir Charles Wakefield sent Sir Alan Cobham round the British Isles with the object of encouraging civil aviation, he has returned from his tour enthusiastic, but at the same time disappointed by the apparent apathy that prevails among the civic fathers to provide airports or landing grounds. The conference was called in order that the local authorities might be given such information which would have the effect of cheering up their drooping spirits. With the talent available to the Royal Aeronautical Society they did not fail to give an excellent programme, but it is a question whether it succeeded in its object, or to the extent anticipated. It would have been better if a few members of local authorities had been invited to express their views and indicate why there was a lack of enthusiasm, so that the aviation side might become cognisant of the difficulties that local authorities have to contend with. Every local authority is concerned to keep its rates at a low level; a 1*d.* in the £ increase is quite a serious matter unless there are some compensating advantages, and the civil aviation side of this problem has not yet shown what these advantages are by providing an airport which will easily be a charge of 1*d.* to the rates if not even a higher figure. It was stated that a local authority does not hesitate to construct a mile of road which would cost about the same as that of completing an airport. This may be true, but the local authority does not construct a mile of road without having a very clear idea that traffic will use it to a considerable extent and as soon as it is completed. Can this be said of an airport?

Example of Use of Airport.—The Blackpool Corporation has been very prominent in encouraging aviation; they were the first to have an exhibition of flying many years ago when it was difficult to get the 'planes to do more than hop along the ground. They had an air pageant only two years ago, and they were the first local authority to obtain powers and to secure land for an airport. That airport has been established and licensed four months. The visitors to the town number about 150,000 per day in the season, 200 trains are coming into the town on many week ends, from 10,000 to 15,000 motor cars and vehicles daily have been counted. So that all classes of people, rich and poor, make constant visits to this resort. One would naturally expect that once it became known that Blackpool had an airport—anyone having a machine would have taken the earliest possible advantage and made use of it. The fact that Blackpool had its ground licensed was broadcasted through the daily press in some prominence and the result has been that only *one* machine from outside the town has landed on the ground during these four months, and the coffers of the corporation were enriched by the sum of 1*s.* for the privilege. It must not be assumed that this corporation regrets what has been done, but they have slowed up the expenditure on account of the lack of appreciation of their efforts to assist in providing facilities which the aviators were complaining about through the press.

Effect upon Local Authorities.—Will other authorities take similar active steps and embark on a heavy expenditure even in purchasing land for the purpose when they realise that the compensating advantages are so indifferent as this example gives a foretaste?

Is there an Impasse?—The position is that local authorities think there is no necessity to provide an airport because they see no prospect of the expenditure being justified by either a considerable or even an inconsiderable use of the ground. Civil aviators say that it is no use acquiring machines because there are so few airports to which they can fly and land safely. Here, if it is allowed to continue, is a deadlock. Local authorities have no power to insist upon machines using their landing places, nor are they permitted to run services from town to town and it is doubtful whether they would do so even if they had the powers.

Parallel Case.—A parallel case may illustrate the point that should be considered: A railway company lays down a line from one town to another; in each town a railway station is built fully and properly equipped and at a considerable cost. The company does not leave the line and stations and wait for some person to charter a train to make him to travel between those towns—the company themselves put on a train service, properly scheduled, and whether there be one, 50 or 500 passengers, whether it is a loss or profitable, the train service is continued and the stations are properly used.

Co-ordination.—It should be the case similarly with airports—there must be co-ordination of effort between civil aviation and airports.

There will be a loss of revenue to both parties for a time, but it can only be estimated when both are in operation. If no parties are willing to instal a service, then the airport question is likely to be shelved until there is a willingness.

Cost to Local Authorities.—There are about 500 air pilots in this country and it has been variously estimated that there are about 70 machines; it is the latter number that is the effective one. If 100 local authorities spend a sum of £25,000 in buying land, and simply preparing the ground then a sum of £2,500,000 is involved which means a yearly sum of £175,000 to be provided out of the rates to cover the interest and sinking fund. If there were as many as 175 machines, the use of those grounds would involve a cost of £1,000 per machine per annum to the local authorities and the loss of value, agriculturally, would be about £20,000 per annum, because the 10,000 acres of land would be unrentable by any farmer.

Probable Income.—The writer is well aware that income can be derived from joy flights, aviation schools, from the sale of petrol, from spectators, but whether this will cover the value of the interest and sinking fund in every case is doubtful. What is essential is that a proper service of passenger 'planes should be established between every airport that is licensed and belongs to a municipality

Management of Airport.—There is a tendency to establish a municipal airport and let it off to a company for a period of years who will run the airport completely—it is doubtful whether this is a very wise course; it may be an easy way of getting over a present financial difficulty, but if a municipal airport in one town is so run and another company seeks the same course in another, and there is opposition or friction between the two—then there will be difficulties put in the way which will be prejudicial to both towns. It would be far preferable that municipal airports should be run by the municipality and on an agreed basis of terms which would not be onerous on any service. Local authorities should combine and form a common policy.

Services should be provided.—The director of civil aviation might lay down a chain service between towns, then those towns on the chain might be invited to have an airport in consideration of the service given to them. At present there is apparently no policy, no system of service; all that is given to local authorities is that if airports are established, private machines may—or may not—pay their town a visit; if, on the other hand, there is no airport—then they miss this advantage, and it is a deterrent to civil aviation generally.

Comments on Papers.—Reverting to the proceedings at the conference, the papers were instructive and informative but lacking in a common object. One gave definite and clear information which was valuable—that one man is all that is required to run an airport in the early stages of its use. The next speaker gave the area of ground that would be licensed, viz.: 600 yards square or 75 acres, provided there were no obstructions on the surrounding ground of such a height as to render that area not available. He also stated

that in all probability one hangar which could be used as a repair shop would be all that was necessary, and that all-metal machines could stand in an open dock without harm, just as ships are left in the open and railway carriages on a siding; one presupposes that the "dock" would be in a sheltered position. One would naturally expect that if 600 yards square is licensed and that all municipalities laid down their area on these lines, then any larger area cannot be necessary. Unfortunately the speaker that followed advocated a length of 1,000 to 1,500 yards so that this statement made at the same meeting and under the same auspices contradicts the other and local authorities are therefore left in the unhappy position of not knowing what to do.

It may present no difficulty to acquire land to the lower figure, but it would and will present grave difficulties to acquire the larger one.

Unemployment Grants.—There is another matter that was of interest, one of the speakers indicated that the Unemployment Grants Committee might contribute towards the cost of the constructional work. Seeing that the Air Ministry is taking an active part in civil aviation and the installation of an airport being quite obviously a project which is in advance of the requirements of the public, it would seem to be a work which the Government should take in hand entirely and use the unemployed on this work, taking upon themselves the cost, and when the local authority find that they are able to meet the repayment and interest on the expenditure necessary to acquire the land, and the cost of the upkeep—then the Government might make a charge to cover their expenditure.

FRANCIS WOOD.
Borough Engineer and Surveyor to the Borough of Blackpool.

Blackpool,
November, 1929.

FLYING BY INSTRUMENTS

[2217]. I notice with interest the "Flying by Instruments," pictures on page 1181 of your current issue. This scheme was *regularly* used at the Central Flying School, Upavon, Wilts, as far back as 1917.

Some of the lay press recently hailed this "hood" business as a new scheme. H. SEELY-WHITBY, A.F.C.

Lenton Sands, Nottingham,
November 8, 1929.

AEROPLANE CONTROL

[2218] THE present system of aeroplane control, with foot-operated steering and joy stick (or the like), seems to be accepted without question, as though it had been decreed by Biblical authority.

There is only one other form of locomotion in which the pilot "steers" with his feet. That is walking! The cyclist, airshipist, motor boatist and motorist steer the machines *by hand*, which is the natural method. Yet in stepping out of a car into an aeroplane the budding aeronaut has to learn all over again. Is it not possible that the control system of an aeroplane may be still further improved? For instance, would it not be possible to make at least one control automatic without complicated mechanism? One step in this direction is, I believe, the servo control of the Armstrong "Argosy," and it might be of interest to collect the experiences of pilots on this matter.

If there is anyone interested in this subject the Editor will, I feel sure, put him in touch with the writer, who feels that the last word has *not* been said in bringing flying within the realm of the common or garden motorist.

BM/JLYL

A CROYDON CRITICISM

[2219]. My letter to you recently mildly criticising the treatment I experienced at the Croydon Aerodrome Hotel seems to have raised a storm and perhaps you will be good enough to find room for this reply. Your correspondent, Geoffrey Beach disclaims anything wrong with Croydon and yet he admits that his experience was limited to the booking hall. May I point out to him that my letter was in no way a criticism of that particular part of the administration. Mr. Harold Solomon also suggests that my letter was a criticism of the management as a whole. He, in turn, seems to have missed the chief point of my letter, and asks if it is not usual to make a charge for a time table at any railway station; I can only ask Mr. Solomon what he thinks would be the result if the railway stations, landing stages, motor-bus termini, etc., were all to remove the usual boards on which they display their time tables. Naturally if one wishes to take away a copy of this information one expects to have to pay for it. In these days when we hear so much about heredity, we naturally expect Mr. Solomon to be wiser than most of us, but just how he could know whether I was cheerful or not on that day is beyond my understanding, and in any case he was wrong because I can assure him that I never felt happier in my life than at that time. J. P. C.

Victoria, S.W.1.
October 10.

◈ ◈

An Aero Exhibition in Stockholm Next Year

IT is proposed to hold an Aero Exhibition on September 6-28 next year in connection with the Art Exhibition which is being held in Stockholm during the summer. Further particulars will be issued later, and it is hoped that British aircraft firms will participate.

Prague—Bucharest Air Line

THE Government of Czecho-Slovakia has opened a new air line between Prague and Bucharest. The recently purchased Ford all-metal 3-engined monoplane is being used on this service.

Greek Military Aircraft Damaged

A SEVERE gale on October 30 destroyed the hangars of the Greek military aerodrome near Salonika, and 20 aeroplanes were damaged.

Changes at Vickers

MR. G. R. T.-TAYLOR has resigned his appointment as Deputy Chairman of Vickers, Ltd., but retains his seat on the Board. Mr. G. G. Sim, C.S.I., C.I.E., has been appointed Deputy Chairman in his place. Mr. J. Reid Young, C.A., has been appointed Secretary to the Company in place of Mr. Sim.

Italian Civil Aviation

THE present Italian air routes are estimated at 8,000 miles, of which 6,200 are sea routes. During the first half of this year over 500,000 miles were flown by seaplanes and 280,000 miles by aeroplanes. Since the start, in April, 1926, there have been no accidents to either passengers or goods.

"The Inspection of Metals"

ON Thursday, November 21, 1929, Mr. L. W. Johnson will lecture before the Royal Aeronautical Society and the Institution of Automobile Engineers on "The Inspection of Metals and Their Alloys." The lecture, which will be fully illustrated, will be delivered in the lecture hall of the Royal Society of Arts, 18, John Street, at 7.45 p.m. It is particularly requested that members should note the change of time for this lecture. Light refreshments will be served in the Library of the Society of Arts, from 7.15 p.m. In the course of his lecture, Mr. Johnson will deal with the various types of test and will then proceed to outline the origin of defects in various materials, the best methods of working, and the detection of flaws in the finished material. The paper will be one of the most exhaustive on the subject which has been given for some time.

Desoutter Monoplane Passes Martlesham Tests

THE Desoutter Sports Coupe monoplane has successfully passed all its tests at Martlesham. Figures show that this machine climbs to 4,000 ft. in 6 mins. 1 sec., with a full load of 1,800 lbs., and has a maximum speed of 111 m.p.h. at 1,500 ft. Its cruising speed is a genuine 96-98 m.p.h. at 1,900 r.p.m., with the "Hermes." On Saturday last, Mr. J. J. Flynn flew this machine from Croydon to Hanworth, with Mr. and Mrs. Desoutter and their daughter (aged 8) as passengers—and the machine still had plenty of reserve power for climbing. At Hanworth the machine was flown by Mr. G. Boyes (of N.F.S.), and Sq./Ldr. England (of Handley Page), and both expressed themselves very pleased with its performance and flying qualities—especially its non-stalling qualities. The Desoutter Sports Coupe is now in full production, the first three deliveries to N.F.S. being due this week; after this, machines should go through at the rate of one per 10 days, and probably one per week by the end of the year.

A Matter of Ownership

WE have been asked by Cellon, Ltd., to correct a statement which, through an oversight, appeared in their advertisement in FLIGHT for November 8. This referred to the Gloster Survey machine, which was stated to have been built to the order of the Air Survey Co., Ltd., whereas this should have been the Aircaft Operating Co., Ltd.

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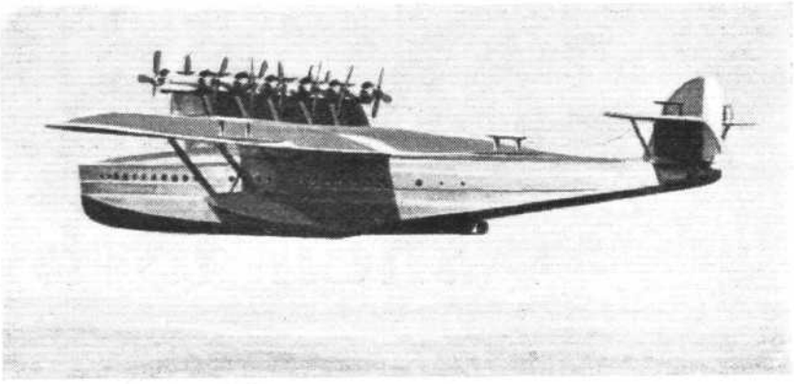
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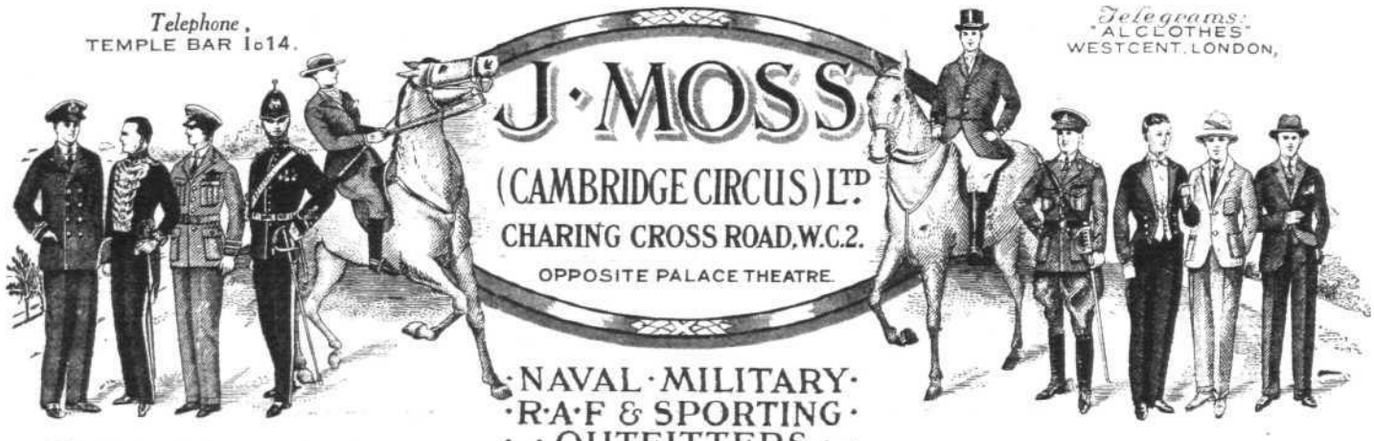
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,, Great Coat	£8	0	0	,, Socks			3	6	,, Collar		1	0
,, Raincoat	£2	17	6	,, Boots	£1	10	0		,, Bow		2	0
,, Cap and Badge	£1	8	0	,, Shoes	£1	5	0		,, Wellingtons	£2	10	0
,, Stick		4	6	,, Puttees		11	6		,, Epaulettes- (for Great Coat)		11	6
,, Gloves		10	6	Gymnasium Shoes		8	6					

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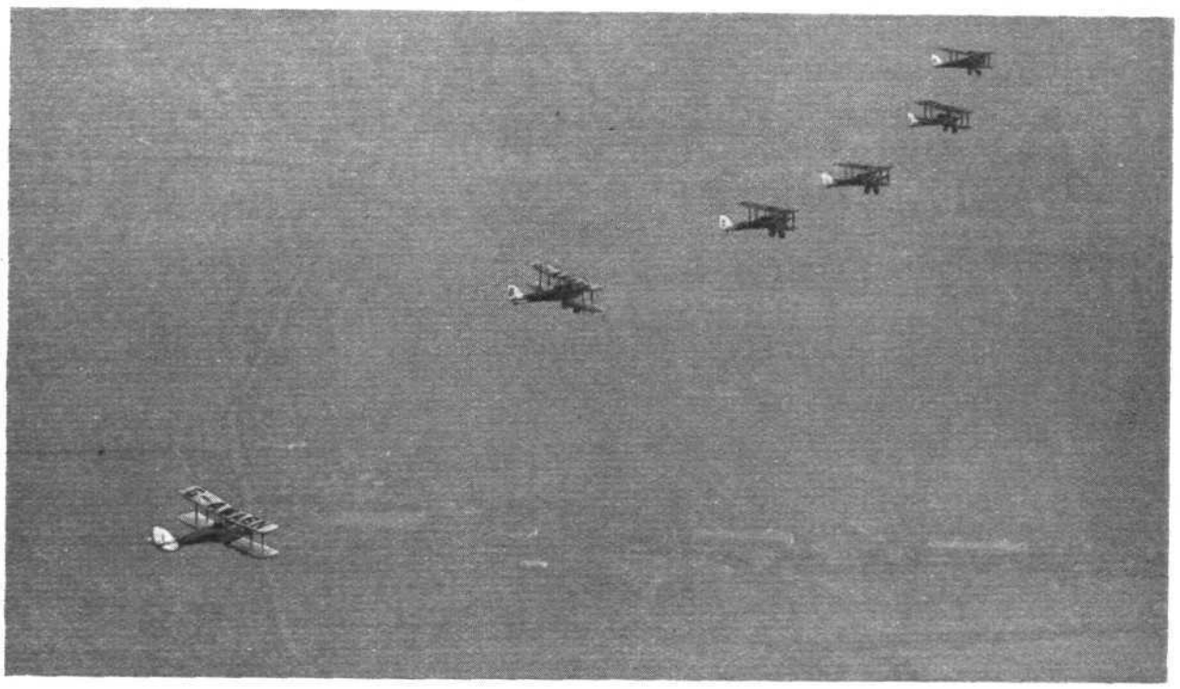


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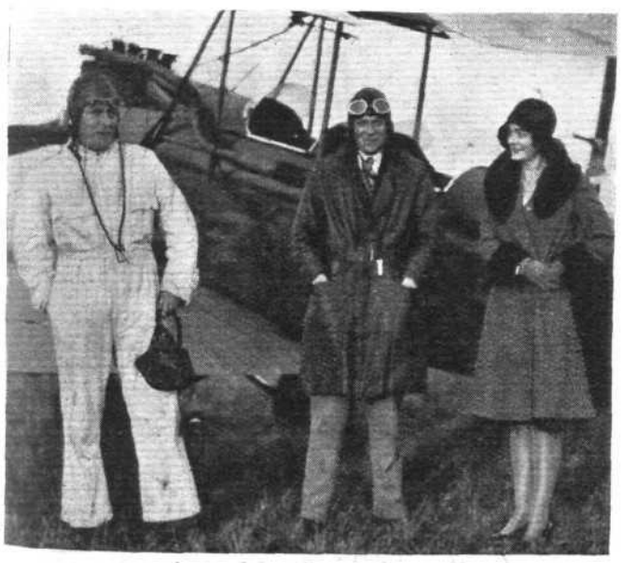
Kindly mention "Flight" when corresponding with advertisers.

PRIVATE FLYING AND CLUB NEWS



BROTHERLY LOVE: The London Club indulge in a little "formating."

THE London Aeroplane Club have piled up the total of 244 hrs. 55 mins. for the past month. This is, of course, largely due to their having the six machines, shown in our photograph, all in commission. During the month Messrs. Wright and Arthur and Mrs. Carter qualified for their "A" licences. Mr. Montague, the Under Secretary for Air, visited the club on Sunday, October 20, and was taken for a flight to see just why "Skegness is so bracing." Mr. Will Hay, Mr. Art Fowler and Mr. Rich Hayes are assisting at the annual dinner and dance and cabaret, which will be held at the Park Lane Hotel on December 6, at 8.30 p.m. Tickets are 17*s*. 6*d*. single, and 30*s*. double, and can be obtained from Mr. M. Spencer, Asst. Sec., London Aero Club, Stag Lane.



The Berks, Bucks and Oxon. Aeroplane Club (N.F.S.) at Reading. Flt.-Lieut. G. A. Pennington, the "No. 1," with Miss "Toby" Cribb, the Hon. Sec., and Mr. W. Richardson, who has learnt to fly in a week.

NATIONAL FLYING SERVICES are expanding the facilities which they already provide for rendering service to their members. The latest new developments include a Sales Organisation; this department will deal with the purchase of aircraft, new or second-hand, and will obtain quick deliveries of all types of aircraft, engines, spare parts, and accessories at manufacturers' list prices; arrangements are also being made for members to purchase machines on favourable hire-purchase terms. A list of second-hand machines available is being issued from time to time, and members should be able to secure good bargains through this source. A table is now issued giving the rates for housing accommodation both in the general and lock-up hangars. Special insurance rates have been arranged for the benefit of members and an insurance department will act as liaison with the underwriters.

A schedule of maintenance schemes has also been prepared, by which the private owner can, if he desires, be relieved of all trouble in regard to the servicing and upkeep of his machine. Should he not wish to make use of the whole scheme he can order any item on the schedule to be carried out separately, and such things as complete overhauls can be carried out rapidly and economically at the new workshops which are just about to be put in commission.

THE Bristol and Wessex Club held their first Winter Season Dance at the Grand Spa Hotel, Clifton, on October 4, with great success; over 150 members and their friends attended and all expressed their appreciation of the arrangements. The next dance will be held on December 6. Mr. L. A. Egglesfield, who has been acting as assistant instructor for six months, has gone to N.F.S., and takes with him the very best wishes of the club, who benefited greatly by his careful teaching during his time with them. During October, 65 hrs. 30 mins. were flown with their two machines YH and CD, and Lieut.-Comm. G. James, R.N., and the Hon. G. Dutton took their "A" licences.

THE Suffolk Club suffered a personal loss when the *City of Rome* recently went down in the Gulf of Spezia, as Flying Officer S. Birt, the pilot, was a member of the club and piloted one of the club's "Bluebirds" in the King's Cup Race of 1928.

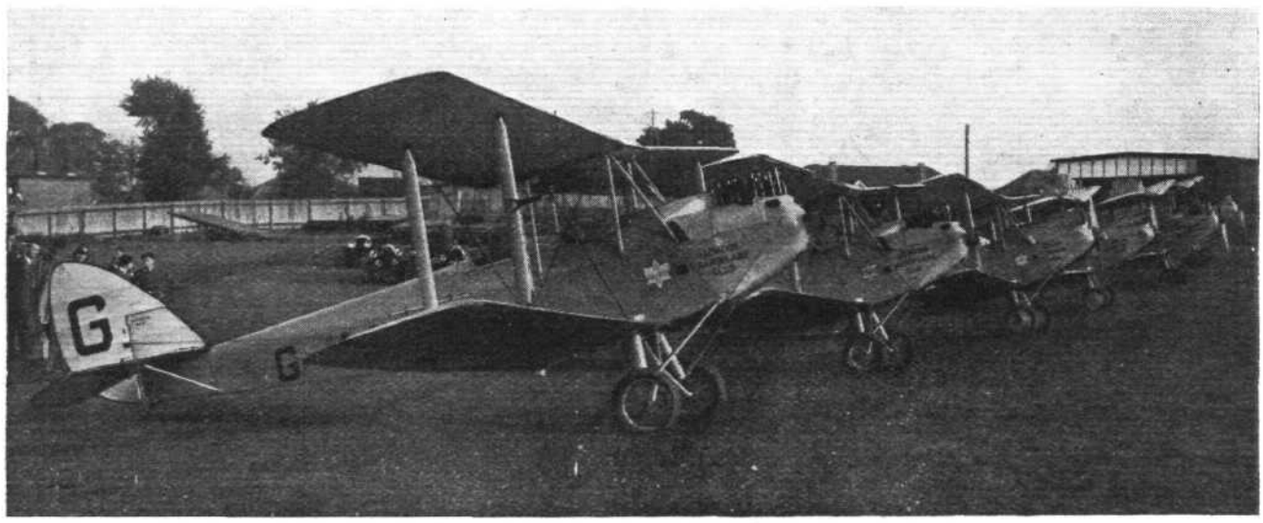
THE Brooklands School is also another one where people are realising that it is a fallacy to think that the winter is no good at all for flying. Last week Messrs. W. McCullock, T. McCullock, Berington, Turnbull and Turner all "joined up," and Mr. Campbell-Orde went solo after only 7½ hrs. dual in a Renault Avro.

THE Northamptonshire Aero Club had their two machines in commission during the month and were able to score 52 hrs. 50 mins. flying time. During this time six new flying members and two associate members joined the club.

the aerodrome has been proposed, and it is hoped to get in some flying this year.

THE Hampshire Aeroplane Club got in 147 hrs. 50 mins. flying time with four machines. Six members, Messrs. Lipscomb, Capon, Blake, Allinson, Brownell and Sir R. C. East, took their "A" licences during the past month. Five new pilot-members have joined the club, and the President, Lord Louis Mountbatten, is now undergoing instruction.

THE Phillips and Powis School at Reading are still enrolling pupils in spite of the approach of winter. This week Messrs. Chitty and Keeling started their instruction,



The London Club in review order.

THE Cinque Ports Flying Club are still forging ahead' and during the last month they got in 84 hrs. 30 mins. flying time with two machines. The membership is now 123, of whom 108 are flying members. During the past week two members, Messrs. Turner and Thomson, secured their "A" licences. Among the members under instruction, Mr. Williams must surely hold the record for starting early, as he is only 15 years of age.

A MEETING of the Punjab Flying Club Committee was held at Lahore on October 8. Comdr. Cooper, the secretary of the Aero Club of India, was present, and expressed satisfaction of the way things were progressing. A site for

and Dr. Nicholson is nearly ready to go solo. Mrs. Bright and Messrs. Logan, Clements, Warwick and Cunningham have also joined the school.

MR. BAKER, flying for Crude Oil Tractor Traders, Ltd., Western Australia, flew from Perth to Kununoppin in 1 hr. 50 min. to visit Mr. J. Kahl, owner of the first Lanz tractor disposed of in this State, from there Mr. Baker went to Miling, then he flew across to Moora, and afterwards returned to Perth, the total flying time occupied on the whole trip being 5 hrs. 30 mins. The time to visit the same places by train would have been over 8 days. By car it would have been 19 hrs., assuming that an average of 25 m.p.h. was



P. T. Eckersley, Captain of the Lancashire County Cricket Team and a keen pilot of a Hermes-Avian.



maintained. The number of Lanz tractors in this State is increasing rapidly, and as some are situated at great distances from others, the question of service has given much concern; for instance, the distance from Perth to Binnu is 364 miles, from Binnu to Ongerup is 665 miles, from Binnu to Salmon Gums is 873 miles, and from Perth to Southern Cross is 237 miles. It is not possible to give efficient service by train or car, having such distance to contend with, and it was therefore decided to purchase a "Klemm" plane.

SIR CHARLES WAKEFIELD, who has probably spent more out of his own pocket than anyone else to promote aviation throughout the British Empire, has just presented a Moth to the Aero Club of East Africa. The first Moth which he presented was to the Lancashire Ae.C. in 1925. Since then he has presented six more Moths to Maj.-Gen. J. H. McBrien (Canada), the Delhi Flying Club (India), the Singapore Flying Club, the Johannesburg Light 'Plane Club (S.A.), the Lyttleton Flying Club (N.Z.), the Aero Club of

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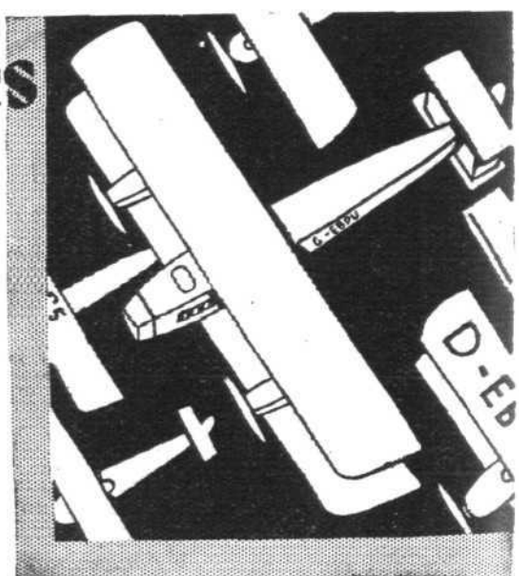
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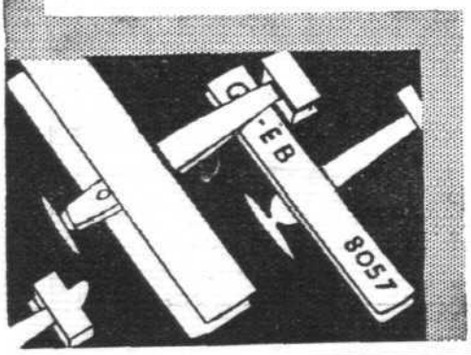
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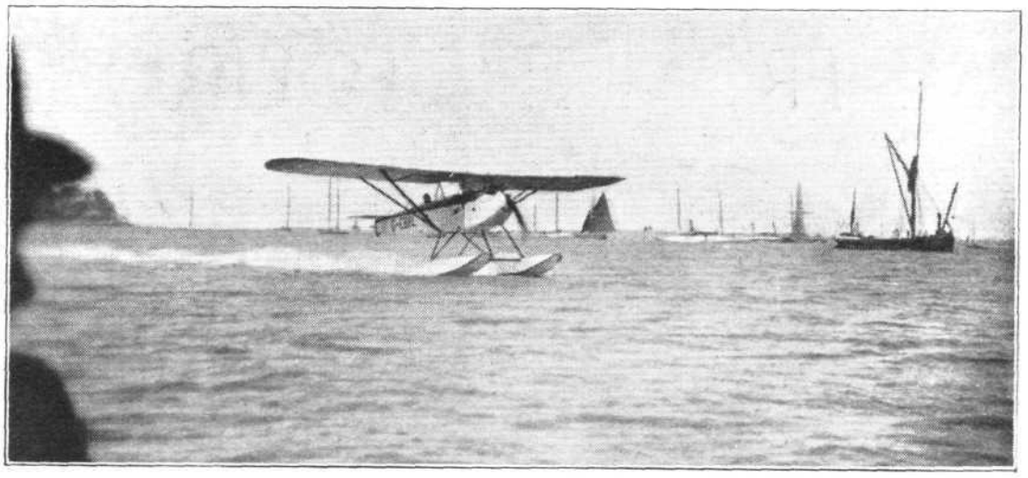
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A "Widgeon" in its native element!

East Africa. Those for the Lyttleton and Singapore Clubs were seaplanes.

In the case of the Delhi Club, Sir Charles had promised, soon after the establishment of the Indian flying clubs, to present a Moth to the first club producing 10 qualified pilots. This was won by Delhi by a short head.

ON Friday morning, October 1, at Heston Air Park, Mr. Carnera, the Italian heavy-weight boxer, who had never flown before, made a trip in a Moth piloted by Capt. Baker, chief instructor at Airwork. In spite of his immense size and girth, he was comfortably accommodated in the front cockpit, although an attempt to insinuate him into the pilot's seat ended in partial failure. Mr. Carnera thoroughly enjoyed his trip, and was understood to say that the Moth was, so far, the only thing which had ever made light of his 20 stone.

MR. R. A. BRUCE, O.B.E., the managing director of the Westland Aircraft Works, was greeted in an appropriate way on his recent return from Panama. As the *Cavinia*, the ship in which he was returning, came up the Bristol Channel she was met by a Westland IV, which circled round a number of times and exhibited banners with his initials on.

AMONG the interesting incidents at the Cleveland (U.S.A.) races was the fact that Col. Lindbergh, with Mrs. Lindbergh, flew from New York to Cleveland in a Lowell-made Gipsy Moth, which he chartered from the Aviation Country Club, Inc. The Lindberghs said they were very well pleased with the machine.

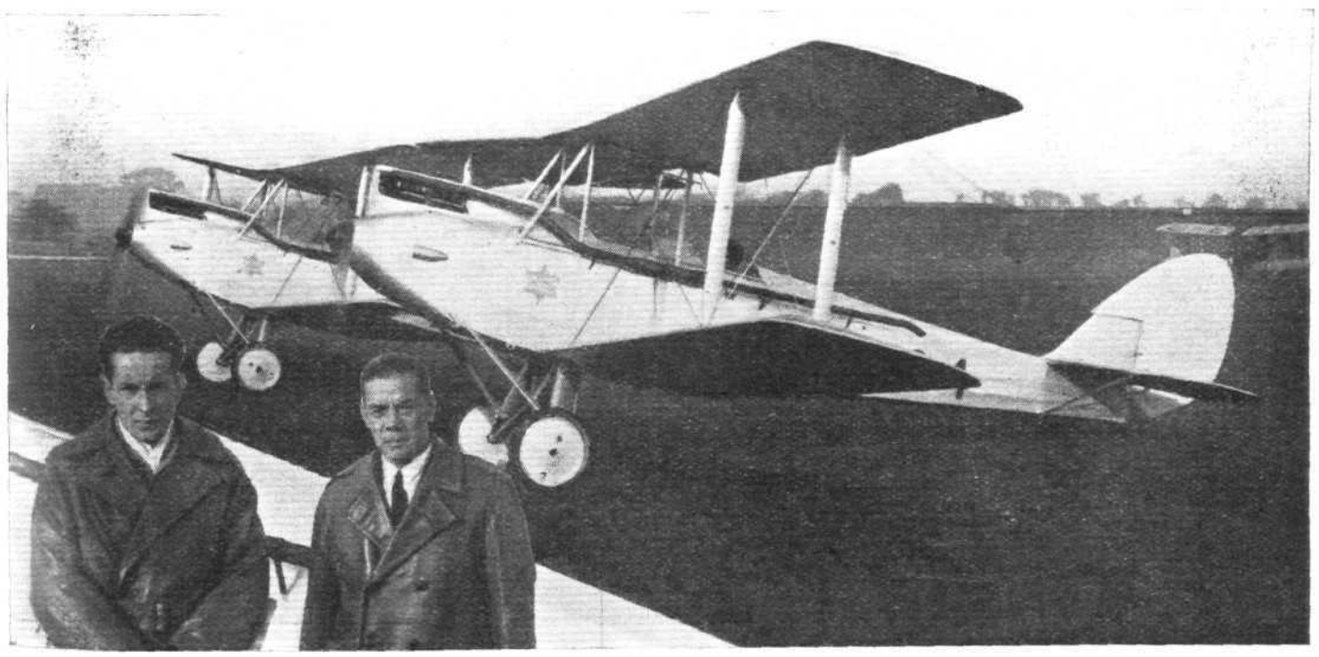
A DORNIER Metallbauten "Libelle" flying-boat with a Cirrus Mark III engine has been delivered to a private owner in Sydney, Australia, and has been flying with marked success, carrying two or more passengers.

IN the recent Aerial Derby held at Brisbane, Australia, a Cirrus "Widgeon" obtained fastest time, and was second in the race, being beaten by only 6 ft. after conceding one minute start to the winner over a course of 11 miles.

DURING the past month orders have been received for "Hermes" engines to be installed in Avro Avian seaplanes for use on air taxi work in China.

A KLEMM light aeroplane piloted by Kurt Siemond, of the Leipzieger Verein fur Luftfahrt und Flugwesen e.v. (Leipsic Aero Club), made an attempt on the existing endurance record for light aeroplanes in one of the club's aeroplanes, D 1614, fitted with a 40 h.p. Salmson engine. He started on Sunday afternoon, October 27, 1929, at 1.29 p.m., from the flying ground at Mockau-Leipsic, and, after a flight of 18¾ hours' duration, landed again on Monday morning, October 28, at 8.19 a.m. The aeroplane was a standard Klemm light aeroplane, which during the last 4½ months has made over 600 flights in the hands of 20 different pilots of the Leipsic Aero Club.

FURTHER to the announcement of last week, we hear that, as the state hangars at Matyasfold are not very extensive and may probably be fully occupied, arrangements have been made by the A.A. with the Federation of Hungarian Aviation, that space in the hangar of the Federation shall be at the disposal of members of the A.A. when the state hangars are full, at the same housing fees as are charged at Croydon.



Capt. Grrido Veri ı and Capt. Infante Penax leaving for Madrid with Moths for the Royal Spanish Air Force.

AIRISMS FROM THE FOUR WINDS

The Prince of Wales' African Tour

THE Prince's private aeroplane is said to be expected in East Africa by Christmas, so that his pilot may become acquainted with the local conditions. The journey from the Cape to Cairo will be made by air and road during his African trip.

R.101's Fifth Flight

R.101 made her fifth test flight on Friday afternoon, November 8. She left the mast at 1.47 p.m. She carried 82 people, of whom 40 were passengers and amongst these were the Mayor of Bedford and his Deputy. Next Saturday, the 16th, she will make a cruise of about 4 hrs. during the afternoon and will carry 100 persons; most of the passengers will be from the House of Lords and the House of Commons. The gale on Monday, the 11th, does not seem to have greatly troubled the crew of R.101, and though the wind reached gale force and veered as much as 135 deg. in one minute, the designed loads were at no time approached and there was no undue anxiety caused as to her safety.

R.100 Nearly Ready ?

R.100 is said to be waiting until R.101 has finished her trials so that she may then fly straight to Cardington and moor-up to the mast.

America and Lighter-Than-Air Craft

ADMIRAL MOFFETT, when at the ceremony celebrating the completion of the largest circumferential girder-ring of the ZRS 4, spoke of the determination of the U.S. Navy to retrieve the disaster to the *Shenandoah*, and to lead the world in the construction and operation of lighter-than-air craft. The ZRS.4 will have a capacity of 6,500,000 cu. ft., with a length of 785 ft., as compared with the R.101 with a capacity of 5,000,000 cu. ft. and a length of 732 ft.

" Graf Zeppelin "

A DEADLOCK now seems to have occurred in the preparations for the Arctic flight of the " Graf Zeppelin." At first the crew had entirely refused to go, but when arrangements were made to insure their lives they consented; now, however, " the International Pool of Insurance Companies " has refused to accept the risk of £150,000 on the ship itself, and in consequence Dr. Eckener is said to be approaching the London Market with a view to getting the ship covered here.

R.A.F. Non-Stop Flight to the Cape

THE long-distance record flight to the Cape has been postponed until the week before Christmas.

New Caproni Bomber Tested

A LARGE Caproni bombing plane, with six engines developing a total of 6,000 h.p., was tested in the presence of Sig. Balbo, Italian Air Minister, at Milan on November 2. This machine has a maximum span (lower plane) of 155 ft. and a speed range of 56 to 130 m.p.h. Its weight fully laden (including 8 tons of bombs and 2,640 galls. of fuel) is 35 tons.

Missing Canadian Airmen Found

THE Canadian mineowner, C. H. McAlpine, and his seven companions who set out in two aeroplanes for the Arctic on September 8 and were missing from that time, have been located by searching aeroplanes at Cambridge Bay, Victoria Island, in the Arctic Sea, safe and well.

Le Bourget-Madagascar Flights

THE French airmen—Goulette, Bourgeois and Marchesseau—who left Le Bourget for Madagascar on October 17, in a Farman-Salmson 190 monoplane, reached their destination on October 27. They carried 300 lbs. of mails, and flew *via* Oran, Colomb-Bechar, Gao, Elizabethville, and Broken Hill.

On October 28 three other French airmen—Bailly, Reginensi and Marsot—set out from Le Bourget on a similar mission in a Farman 190 fitted with a Gnome-" Titan " engine. They reached Oran (932 miles) the same day in 10 hrs. 15 mins., and arrived at Madagascar on November 4, having accomplished the 6,835 miles in 7 days 7 hrs.

Aerial Derby to be Revived

THE Royal Aero Club announce that they will revive the Aerial Derby which was last flown in 1923 and won by the late Larry Carter.

Australian Air Force Changes

THE Commonwealth Ministry is considering the reversion to the separate Naval and Army Air Force, in spite of the recommendation of Sir John Salmond last year. Economy is put forward as the reason for the suggested change.

Magnanimous Mussolini

THE Italian Cabinet are presenting the S 64, in which Capt. Ferrarin and Lieut. del Prete flew from Rome to Brazil, to the Brazilian Government, and the engine of the *Norge* is to be given to the Italian Geographical Society.

Lady Haig Flies to Liverpool

WITH Lady Bailey, Lady Haig flew to Liverpool where she took part in the Armistice Day arrangements.

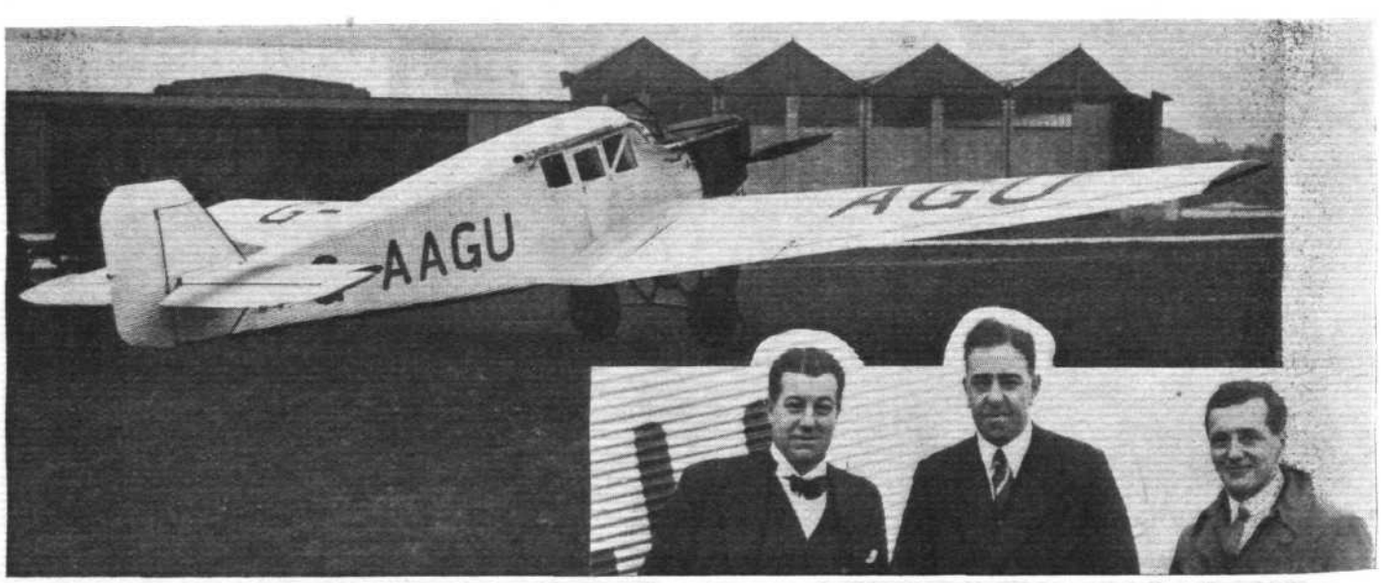
Luft Hansa Disaster

A JUNKERS G.31, flying on the London-Berlin route, crashed into the trees on a hill near Godstone on Wednesday, November 6, and the crew of three and three passengers were killed. Prince Eugen von Schaumburg-Lippe, the second pilot, and Lieut.-Commdr. Glen Kidston, R.N. (a passenger), were badly burned but got clear; the Prince, however had a relapse and subsequently succumbed to his injuries.

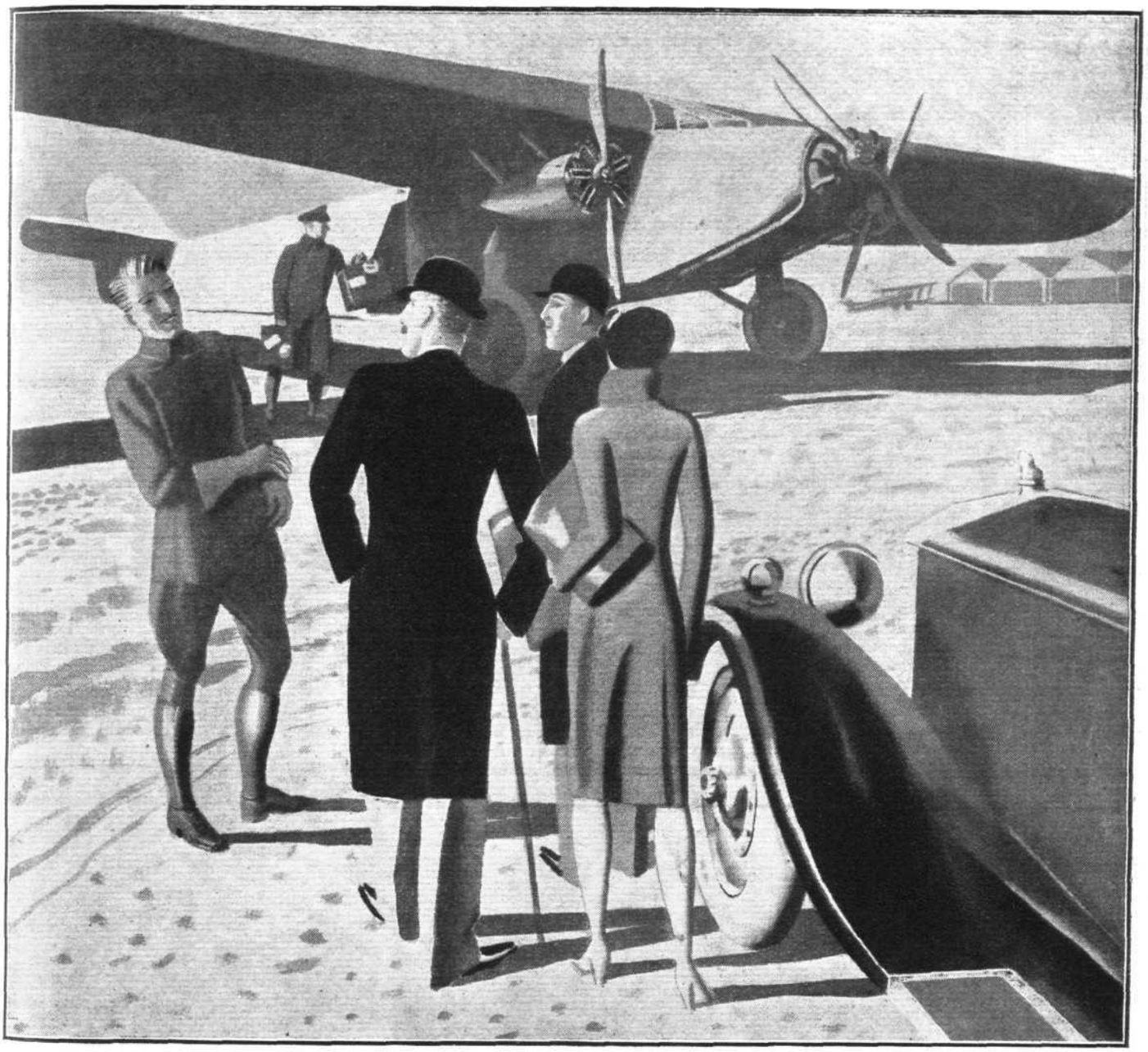
The Secretary of State for Air sent the following message to the German Minister of Transport :—" Air Council have heard with profound regret of accident near Caterham to Luft Hansa air liner D.903, *en route* from Croydon to Amsterdam, and loss of life involved."

Fast Lifeboat for the Channel

THE fast lifeboat which has been built by Thornycrofts at Hampton will be launched on November 21. She is 64 ft. long and has two 375-h.p. engines, which will give her a speed of 18 knots. She will be stationed at Dover in order that she may be available to rescue any of the cross-channel aircraft that may come down.



Major M. S. Marsden with his pilot, Major J. N. C. Clarke, and ground engineer, Mr. F. G. Amer, of the Air Express Co., Croydon. They are running Junkers F.13's for what might be called " The Daimler Hire Service of the Air." (FLIGHT *Photo*)



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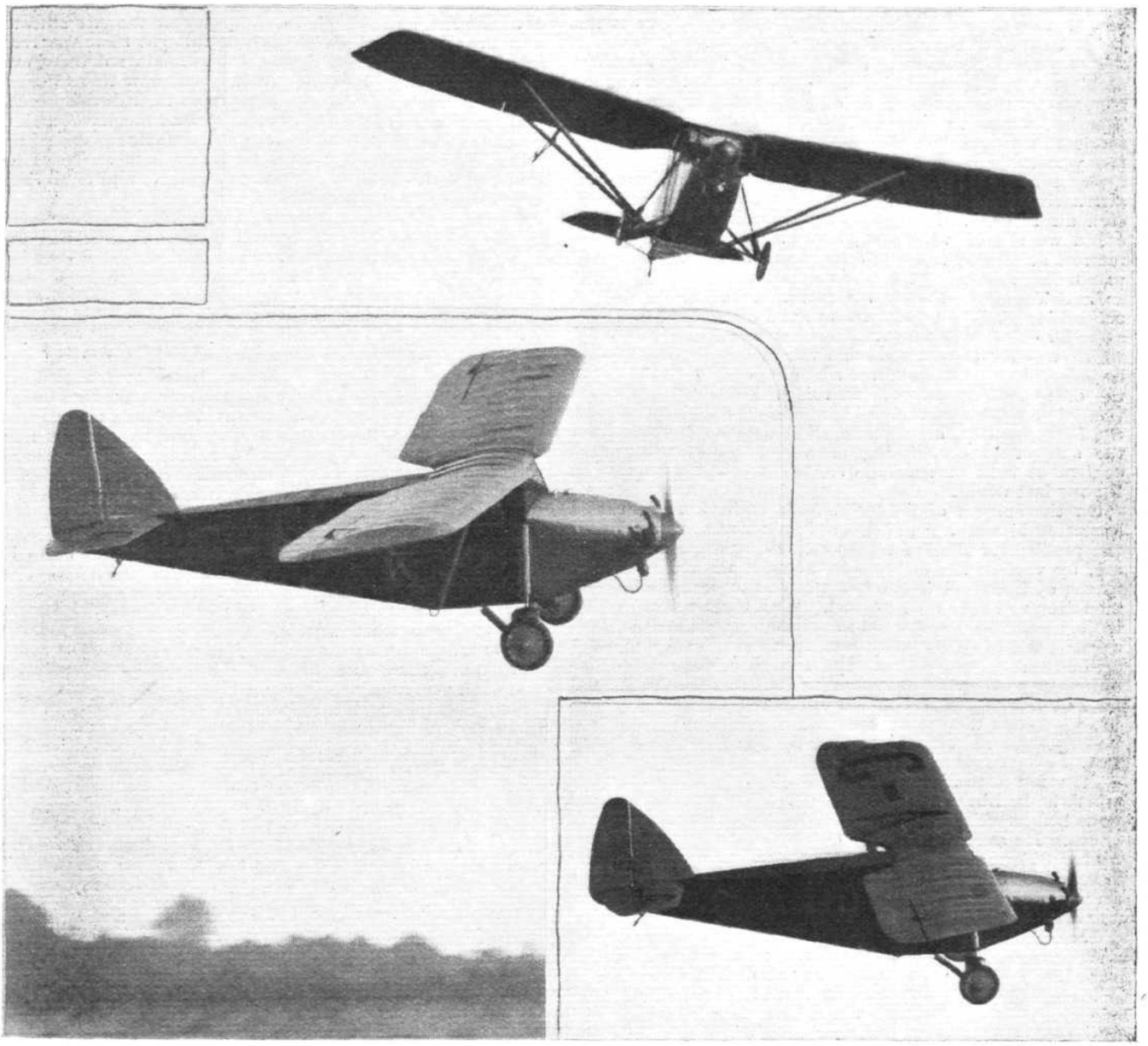
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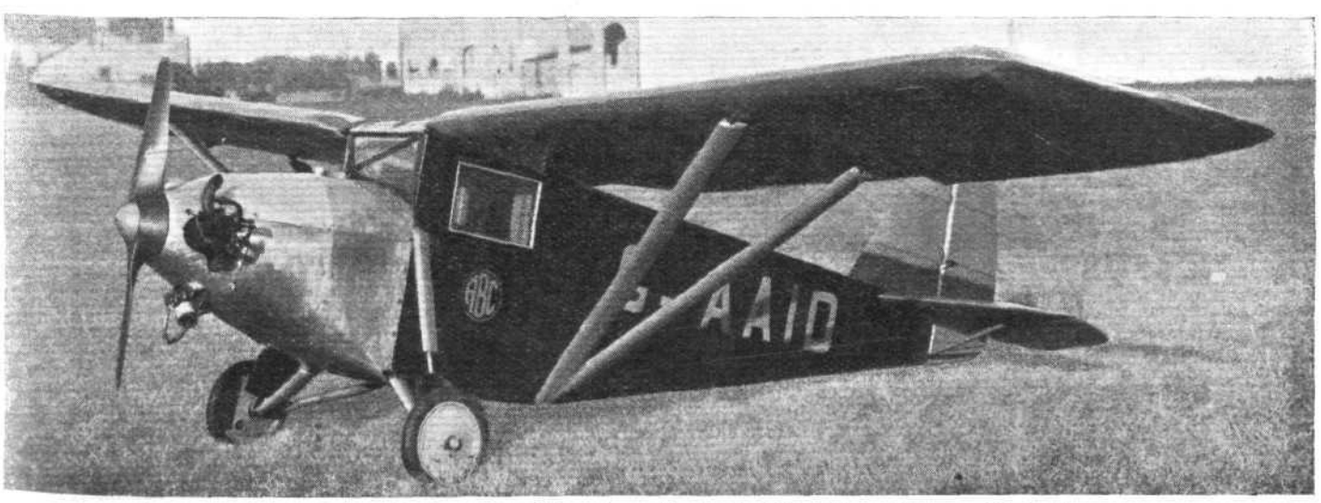
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Our only single-seat cabin aircraft at Brooklands. (FLIGHT *Photos.*)

"AIR FACTS AND PROBLEMS"

ON November 4 the Authors Club took the above as the subject of their after-dinner discussion.

Lord Thomson said that one of the most serious problems which engaged him during the present time was the increase in the air-power of other countries. He quoted America, where the expenditure on aviation and the air services in general had increased by some 124 per cent. in a few years. In most countries, he said, one can see every attempt being made to either, expand their air force or, alternatively, add to their air-power by subsidising their civil air services. He anticipated that unless a halt was called we should very soon, come to the point when the interest at present taken in other forms of armament would pale before that being taken in aviation.

Lord Thomson stressed the fact that the wisest way of subsidising air lines was for the tax and rate payers to do the same for aviation as they had done for motor and sea traffic, which was for them to provide the money for the ground organisation, and to leave the cost of operating in the air to the companies concerned. In this connection it was particularly apposite that some 450 municipal authorities would, the following day, be attending a conference in London on the subject of establishing municipal aerodromes (which conference took precedence over this and other reports in FLIGHT last week).

On the subject of lighter-than-air craft, Lord Thomson expressed himself a firm believer in airships as a solvent for the problem of Empire transport. Being separated, as we are, by vast oceans and spaces, he said, we had to have a means of transport which had a large range, ample accommodation and used a cheap fuel. With these points in view he had eventually succeeded in getting a grant for the great experiment, but only after four months of wearying work against much opposition. He modestly depreciated his powers of picking the right men for the job, and inferred that he had been fortunate in happening on the men for this job just when they were wanted. R.101, he said, had now undergone some sort of test, but, by no means, a searching test.

He referred to his recent trip as a couple of hours during which he had been able to do better work than he had ever done before. There was, he said, hardly any motion and no shock. He asked those who sneered at the fact that it required 300 men to moor the ship, to imagine docking the *Berengaria* or *Majestic* with an untrained crew. When last he visited New York, he said, it took twelve tugs to tow in the *Majestic*.

He denied that the R.101 was a fair-weather ship, or that a dead calm was the best for mooring; in fact, the best and easiest conditions were when there was a stiff breeze.

He maintained that she was a great improvement on any existing type, and though not so fast as he would like, she was a big step forward. The opponents to airships he divided into four classes: First those who were natural obstructionists, next those who by virtue of their interest in shipping foresaw in the airship a formidable rival; then the petrol retailers, who preferred to supply petrol at £25 a ton, as against fuel at £5; and, fourthly the heavier-than-air champions.

The Empire, he said, was large enough for all kinds of development, and though the majority at the Air Ministry were heavier-than-air enthusiasts he thought there was room for all of them. When these ships were started there were no other countries building airships, but now there were at least two others spending large sums on their development.

He attributed to the British the peculiar faculty of making engines, and said that he wanted to see us in the van of this great development of human transport, but we could not hold this position, he said, without an open mind to all forms of development and boundless energy.

Dr. A. P. Thurstan, referring to the recent achievements in the Schneider Trophy Contest, said that they had seen flying at half the velocity of sound, and expected that in a few years' time we should be flying at a speed greater than the velocity of sound. There was now, he said, no part of the globe which was more than a week's flying distance away, given the ground organisation, so when might we expect to get fresh strawberries from Australia in the winter?

Major-General E. B. Ashmore, who commanded the London Air Defence Area during the war, said that even if we ever came to total disarmament, we should always want some armaments for police duties, and he suggested the Navy for traffic duty, the Army for point duty and the Air Force as the Flying Squad. The world, he said, was rapidly becoming smaller, and our neighbours coming nearer, and large commercial aeroplanes could be converted into bombers, which might be of some use against the defenceless, so he could not believe that London would ever again be in the same position as when it was recently discovered that she was entirely without any air defences.

Mr. F. Sigrist, joint managing director of the Hawker Eng. Co., who, when with the Sopwith Co. turned out over 15,000 aeroplanes during the war, said that he did not believe in airships, they were, he said, expensive and unpractical, but Civil Aviation was making large strides, and the provision of municipal aerodromes would popularise it and increase air mindedness. We could not do without subsidies, he said, and there was no incentive to designers to produce improved aircraft.

Colonel the Master of Sempill said that he was sure that the air transport system of the Empire would benefit greatly from airships.

Mr. Nicholls Marcy deprecated the introduction of the short-service system in the Air Force, and Sir Alliot V. Roe spoke on the need for more money in the aviation business.

Amongst those present were :—

Sir John Brickwood, Sir Basil Clarke, Gen. Ashmore, Capt. Oswald Tuck, Comm. R. H. de Salis, Col. W. J. Polyblank, Wing-Comm. G. C. Bailey, Maj. Stuart McDonald, Maj. E. C. St. John, Squad.-Ldr. T. G. Skeats, Maj. T. Salkield, Prof. G. C. Henderson (Adelaide Univ.), Prof. D. A. Low, Prof. G. M. Whicher (New York), Prof. W. T. Webb (Calcutta), Dr. A. E. Atkinson, Dr. E. P. Andreæ, Dr. Hector Beale, Dr. J. O. Wakelin Barratt, Dr. F. W. Lanchester, Rev. John S. Penman, Rev. Father Longstaff, Messrs. Ewart S. Andrews, E. H. Allen, Edmund Balding, Clifford J. Beese, D. C. Beese, Patrick Braybrooke, Arthur Colley, William Colley, Scott Durrant, Verney Darbishire, C. Ernest Fayle, A. V. Gordin, F. L. A. Gibbs, H. C. Green, David Graham, Francis Gribble (Chairman, Club Committee), J. E. Graham, A. Godfrey-Lewis, J. B. Hicks, N. J. Hulbert, Herman Klein, A. G. V. Lindon, B. B. Low, W. Martin-Hurst, M. Montagu-Nathan, R. M. Mathews, F. Sigrist, M.B.E., F.A.AeS., F. S. Spriggs, W. F. Spalding, G. F. Sanger, J. V. Tabb, Stewart Tidmarsh, F. Newton Trier, H. V. Usill, Marcel Wallenstein, Roy Webb, Rathmell Wilson, H. Plunket Woodgate, J. Wilson-Haffenden, and Algernon Rose (Hon. Secretary).

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AIRCRAFT DESIGN

AT a meeting of the Scientific Association for Aviation on November 7, Dr. Rumpler discussed the future of long-distance aircraft.

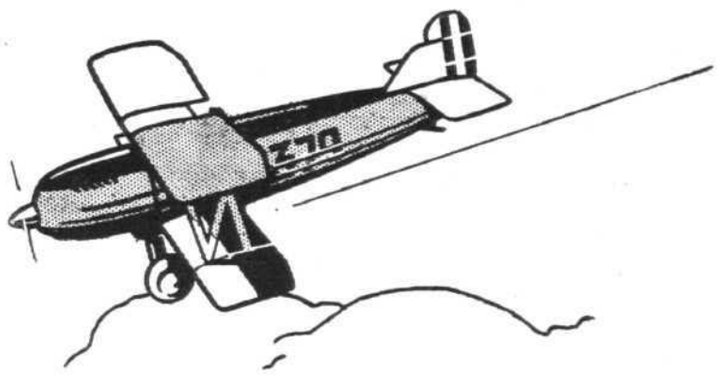
He considered that, with the increasing adoption of multi-engined aircraft, the position of the airscrew was of great importance. In the interests of safety it was advisable to divide engine power into many and therefore comparatively small units; this led to the small airscrew, which must, in consequence, lie behind the wing, in order that its stream could have free play. The choice of positions for the engine was governed by three considerations—the fullest accessibility, the least air resistance, and the greatest reliability in working. These requirements led to their housing within the wings, where they were accessible in flight and offered no resistance.

Dr. Rumpler gave details of experiments with models at Gottingen and Hamburg for a long-distance flying-ship which would surpass the 12-engined Do. X in respect of the ratio of carrying capacity to structural weight. His design for a flying-ship was 10 1,000-h.p. engines having a weight, empty, of 50 tons, and a carrying capacity of 65 tons, or considerably more than its own weight.

The plan foresees a craft carrying 135 passengers, a crew of 35, and a paying load of 18 tons, which would have a cruising speed of 190 m.p.h. and a radius of 3,750 miles. In this design all passenger accommodation and the 10 engines, with their pusher airscrews protruding behind, would be housed in the single plane, which has a span of 285 ft. There would be two 160 ft. hulls, used entirely for fuel storage.

Herr Kiwull, of Riga, described experiments with his device for the reception and dispatch of flying-boats or seaplanes by moving vessels. His "damway," which has been tested in Travemünde Bay and on a voyage between Genoa and Bremerhaven, consists of a canvas runway some 40 ft. wide and 120 ft. long, is trailed from the ship's stern, which would enable aircraft to take off while the ship was moving.

ABOVE AND BELOW

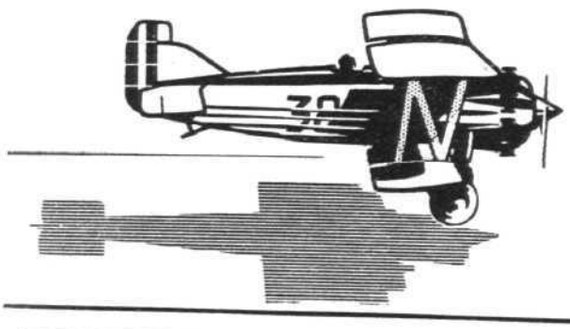


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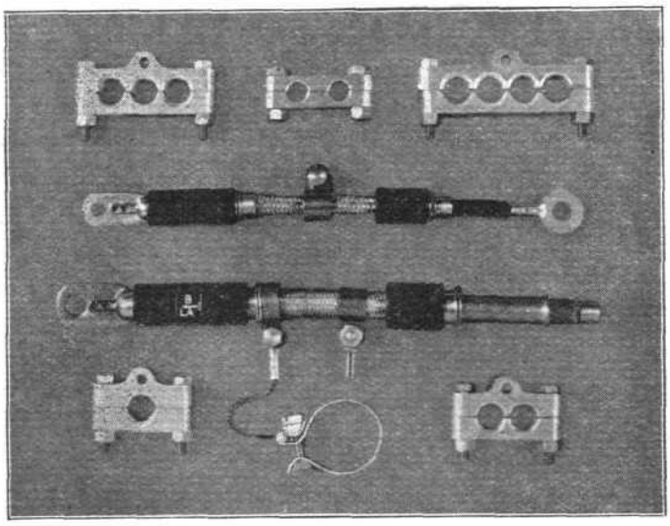
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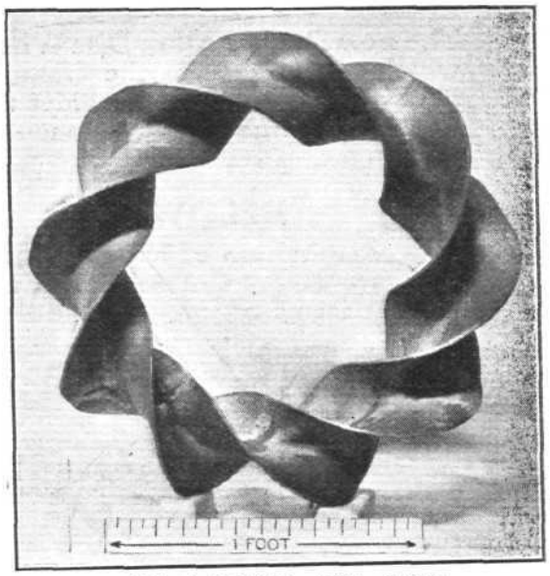
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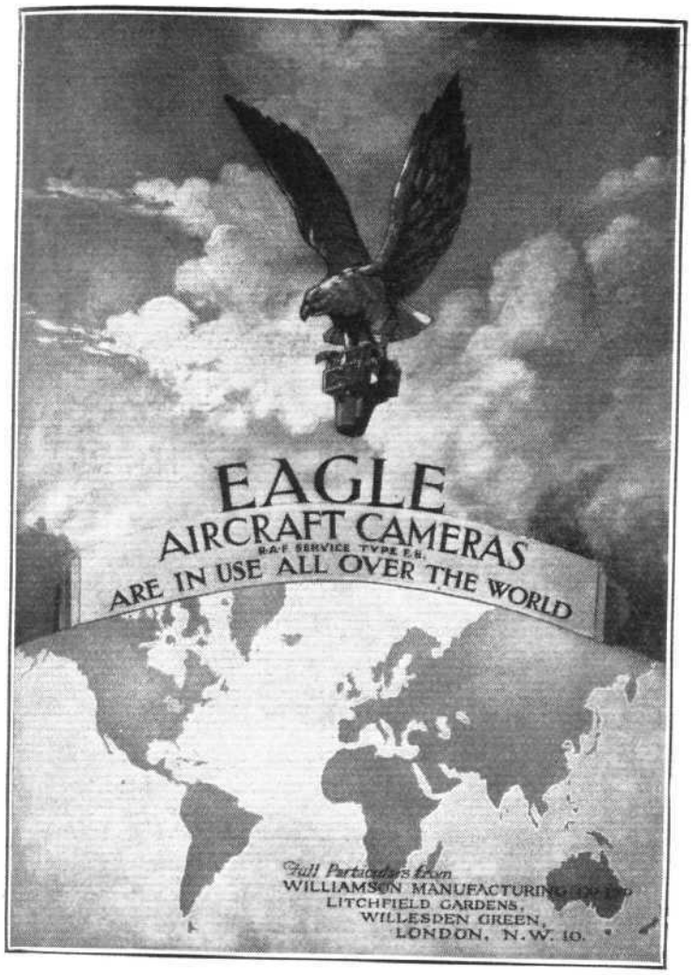
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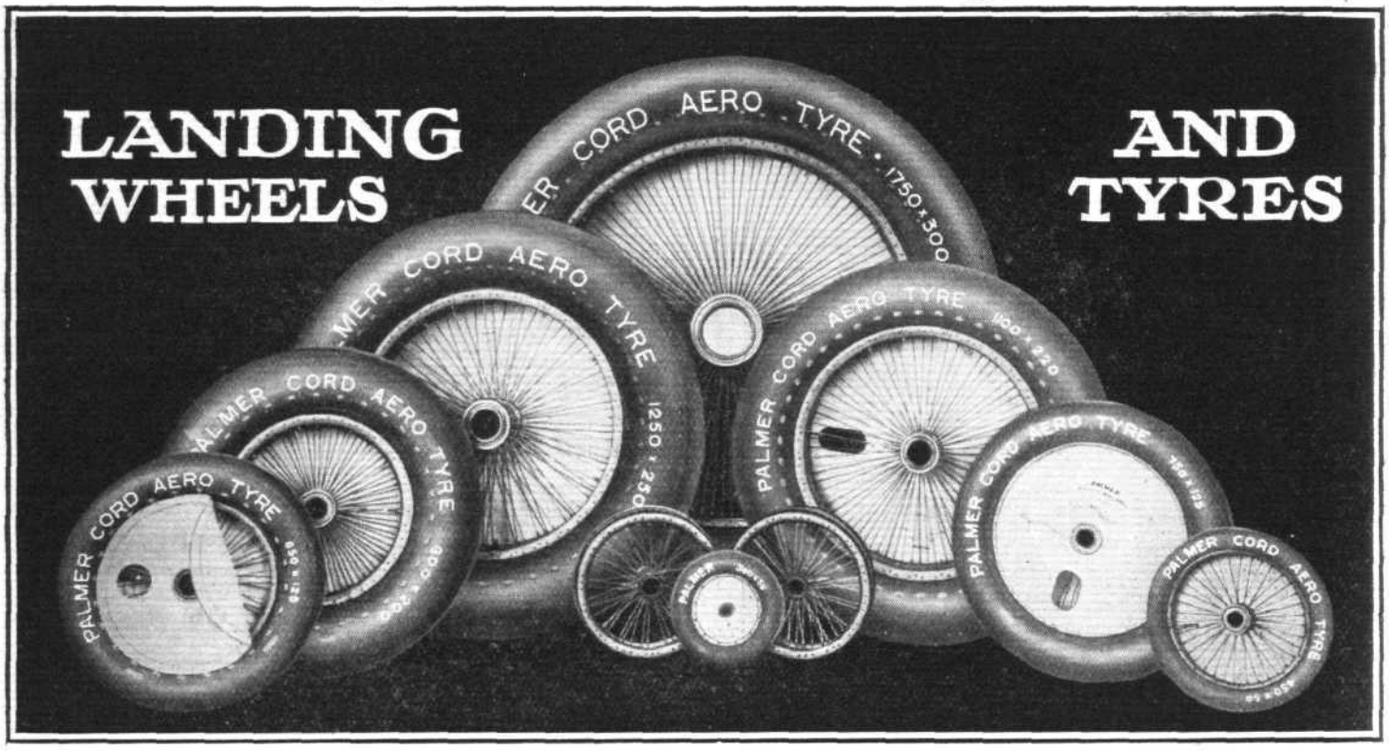
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,,	195	130·	38·09	Central
390×60	16	111·12	25·4	Central
450×60	30	89·	31·75	Central
,,	172	130·	38·09	Central
575×60	21	160·	28·	Central
,,	180	150·	38·09	104/46
,,	186	120·	34·92	Central
,,	190	150·	38·09	Central
600×75	21	160·	28·	Central
,,	180	150·	38·09	104/46
,,	186	120·	34·92	Central
,,	190	150·	38·09	Central
700×75	78	178·	44·45	132/46
,,	79	178·	44·45	Central
,,	100	178·	38·09	132/46
,,	101	178·	31·75	132/46
,,	196	178·	55·	Central
600×100	188	120·	34·92	Central
,,	304	150·	38·09	104/46
,,	333	120·	34·92	Central
700×100	77	178·	44·45	132/46
,,	92	185·	55·	135/50
,,	95	185·	55·	Central
,,	99	178·	38·89	132/46
,,	112	150·	38·09	Central
700×100	176	178·	44·45	Central
,,	179	178·	55·	132/46
650×125	119	178·	55·	132/46
,,	147	178·	55·	Central
,,	188	120·	34·92	Central
,,	336	178·	44·45	132/46
750×125	77	178·	44·45	132/46
,,	92	185·	55·	135/50
,,	95	185·	55·	Central
,,	99	178·	38·89	132/46
,,	112	150·	38·09	Central
,,	176	178·	44·45	Central
,,	179	178·	55·	132/46
800×150	161*	185·	55·	135/50
,,	162*	185·	55·	Central
,,	163*	185·	66·67	135/50
,,	169†	185·	55·	135/50
,,	177	185·	55·	135/50
,,	183	185·	55·	Central
,,	211*	185·	60·32	135/50
1000×150	167	185·	55·	125/60
,,	174	250·	80·	Central
,,	182	185·	55·	Central
,,	187	220·	66·67	Central
,,	201	185·	60·32	125/60
,,	210	185·	60·32	Central
1000×180	148	220·	80·	Central
,,	149	185·	55·	Central
,,	155	220·	66·67	Central
,,	166	185·	55·	125/60
900×200	107	185·	55·	Central
,,	108	185·	55·	125/60
,,	128	220·	66·67	Central
,,	137	250·	80·	Central
,,	157	185·	80·	Central
,,	202	185·	60·32	Central
1100×220	134	220·	66·67	Central
,,	136	250·	80·	Central
975×225	192	185·	60·32	Central
,,	194	185·	55·	125/60
1100×250	364	220·	60·32	Central
1250×250	314	250·	80·	Central
,,	154	304·8	101·6	Central
1500×300	305	304·8	152·4	Central
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THE ROYAL AIR FORCE

London Gazette, November 5, 1929.

General Duties Branch

Flight-Lieut. G. H. Stainforth (Lieut., The Buffs, R.A.R.O.) is granted a permanent commn. in this rank; Oct. 1. The following Pilot Officers are promoted to rank of Flying Officer:—D. B. McGill (with seniority of June 9); June 16. J. A. Harris, C. P. Hanlon, L. H. Snelling; Oct. 8. H. H. Chapman; Oct. 13. M. N. Oxford (with seniority of Oct. 13); Oct. 20. The following Pilot Officers on probation are confirmed in rank:—B. A. Blythe, A. L. Brain, C. M. D. Chambers, H. R. Collins, F. A. McNeill, G. O. St. J. Morris, K. W. Pell, A. F. Powell, R. A. R. Robinson; Oct. 2. A. H. Abbott, F. S. Barron, A. G. M. Cary, C. B. Field, E. G. Granville, H. L. McCulloch, R. M. Messiter, G. F. P. O'Farrell, R. W. Wallace, T. E. Whittome; Nov. 2.

Air Vice-Marshal A. E. Borton, C.B., C.M.G., D.S.O., A.F.C., is restored to full pay from half pay (Nov 1). Flying Officer J. B. Mackenzie takes rank and precedence as if his appointment as Flying Officer bore date Oct. 1. Reduction takes effect from Oct. 7.

Air Vice-Marshal Sir Oliver Swann, K.C.B., C.B.E., is placed on the retired list: Nov. 2. The following are placed on retired list at their own request:—Air Vice-Marshal C. A. H. Longcroft, C.B., C.M.G., D.S.O., A.F.C.; (Nov. 2). Air Commodore T. C. R. Higgins, C.B., C.M.G.; Nov. 1. Flying Officer L. J. Booth; Oct. 11.

Air Commodore C. R. Samson, C.M.G., D.S.O., A.F.C., is placed on the retired list on account of ill-health; Nov. 6. Flying Officer L. A. Egglesfield is transferred to Reserve, class A; July 8. (Substituted for *Gazette*, July 9.) Pilot Officer on probation R. R. Maxwell-Channel relinquishes his short-service commn. on account of ill-health; Oct. 29.

Pilot Officer B. S. Bramble is cashiered by sentence of General Court Martial; Oct. 9. Pilot Officer J. D. Robertson is dismissed the Service by sentence of General Court Martial; Oct. 26.

Medical Branch

W. S. Stalker, M.D., D.P.H., is granted a temp. commn. as Flight-Lieut., with effect from and with seniority of Oct. 21. The short-service commn. of the following officers are antedated to the dates stated:—A. L. St. A. McClosky; Sept. 1, 1926. R. Thorpe; Sept. 2, 1926. L. O'Connor, M.B.; Aug. 2, 1927. J. C. Neely, B.A.; Nov. 11, 1927. P. B. L. Potter, M.B.; March 5, 1928. J. L. Groom; April 2, 1928.

Flying Officer L. O'Connor, M.B., is promoted to rank of Flight-Lieut.; Aug. 2. Flight-Lieut. (Acting Squadron Leader, Hon. Wing Commander), J. N. MacDonald is promoted to acting rank of Wing Commander, with pay, whilst so employed; April 1. Flying Officer A. L. St. A. McClosky is promoted to rank of Flight-Lieut.; Sept. 1, 1928 (substituted for *Gazette*, Feb. 5). Flying Officer R. Thorpe is promoted to rank of Flight-Lieut.; Sept. 2 (substituted for *Gazette*, March 5). Flying Officer E. A. Wilson, M.D., relinquishes his short-service commn. on account of ill-health; Oct. 17. Flying Officer V. G. Pedley (Temp. Lieut., General List, Army Dental Surgeon) relinquishes his temp. common. in R.A.F. on completion of service; Oct. 18.

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

C. Langley is granted a commn. in Class A as a Pilot Officer on probation; Oct. 21. The following are granted commns. in Class A as Flying Officers on probation; Sept. 10. E. K. Wallis, J. W. Rayner. The following are granted commns. in Special Reserve as Pilot Officers on probation (Oct. 14):—R. A. Hall, W. F. Pharazyn.

The following Flying Officers are promoted to rank of Flight-Lieut. (Nov. 1):—C. H. A. Farnan, H. M. Schofield, E. H. Fielden, A.F.C., A. L. Macmillan, A. D. McDowall, C. S. Staniland, I. W. C. Mackenzie. The following Pilot Officers are promoted to rank of Flying Officer:—G. R. De Havilland; Oct. 30. E. P. Swallow; Nov. 2.

Flying Officer E. V. Culverwell is transferred from Class A to Class C; Nov. 5. Flight-Lieut. M. Ballard is re-employed with the Regular Air Force for a further year; Nov. 1.

IN PARLIAMENT

THE HOUSE OF LORDS

Air Arrangements at Malta

LORD STRICKLAND (Head of the Government of Malta), on November 12, rose to call attention to the urgent necessity of better provision for civil and Imperial aircraft at Malta and to move for papers. He said the object he had in view was to preserve for Malta, and for the Empire, the advantages in regard to air traffic that England and Malta had enjoyed in regard to shipping since the early Phœnician navigators who founded colonies on both islands. At present there was only one landing place on shore for aircraft, and the harbour was not sheltered for either flying boats or aircraft-carriers. The most suitable place for landing on the water should be adequately protected without delay, and the overcrowded landing place on shore must have adjuncts to meet naval and civil needs that were clamouring for attention. In the Bay of Marsa Scirocco a breakwater was imperatively required for flying-boat development. Among the papers he was asking for was the estimate for this breakwater, which had long been discussed, together with any sketch plans that might be available.

They must have a high road to India, China, Australia, and Africa by air, and Nature had indicated Malta as the first stopping place. The matter had become urgent, because hitherto the main air route to east and south had had a tendency to be diverted from Malta to foreign competitive centres, because it was only recently that flying boats had been constructed to cover safely the transit from Malta to Egyptian territory. The importance of flying boats had been tardily realised; it was now established, and all the energy available should be concentrated to bring this circumstance to fruition so that once again Malta might offer strategical supremacy in the defence of Western civilisation against possible and ultimately inevitable Eastern rivalry. Leagues of Nations had grown and faded away through the centuries both in Western Europe and Eastern China; they had always lacked adequate sanction, and they would continue to do so when the fast-breeding hordes of Asia again moved westwards.

So long as civilian air traffic must develop side by side with naval and Air Force activities legislation and money would be required from both Maltese and Imperial sources; and so long as the procedure in regard to legislation in the Malta Parliament was excessively difficult there would be undue delay, and so long as control of details was duplicated and disorganised there would be deadlocks. The representatives of the Maltese taxpayers would not be ready to vote money if it was contended that the King's Ministers in Malta had no right to administer anything connected with reserved matters, or so long as the part they had in fact and inevitably was minimised by the obviously illogical and illegal contention that because the King's Ministers in Malta could not "legislate" as to air traffic they therefore could not administer in relation thereto. There could not be two Ministries in Malta, and while the King's representative should continue to have absolute and unchallengeable power over all that concerned the air when having a bearing on defence against warlike aggression, the Governor should not be debarred from authorising the discussion of legislation where civil and Air Force interests overlapped, provided that he had the approval of the Secretary of State, and ample opportunity to amend and disallow.

LORD THOMSON, Secretary of State for Air, replying, said that the desire and ambition expressed by Lord Strickland that Malta should be a Clapham Junction of the air in the Mediterranean was entirely in accordance with his (Lord Thomson's) views. But the time was barely ripe for that yet. He did not suppose that the time would be ripe until the range of aircraft had been considerably increased. It was, however, a consummation most devoutly to be desired.

It might be of interest to state the actual situation in Malta at the present moment. There was a Royal Air Force aerodrome at Hal Far which was already very congested; it was not large enough for Air Force requirements. There was a seaplane base at Cola Frana, an auxiliary base at Cola Mistra, and another at Marsa Scirocco—three little bays suitable for the use of seaplanes. Lord Strickland suggested that a breakwater should be constructed at Marsa Scirocco in order to improve the facilities there. He was informed that the cost of such a breakwater would be £25,000,000, and he could hold out no great hopes that that sum would become available. There was another aerodrome projected in the interior of Malta for the Royal Air Force at a place called Safi—that was primarily to relieve the congestion at Hal Far and he was told that another site had been reconnoitred at Ta Kali. Sir Alan Cobham, during a visit to Malta, inspected this site and pronounced it suitable for the purpose of a civil aerodrome if the Legislature desired to put it up. The Air Ministry would raise no objection to that site being developed as an aerodrome, but he would ask Lord Strickland to consult the Ministry first in regard to the arrangements for construction, because there would be this limiting condition, that in case of emergency the aerodrome would have to be taken over by the Air Force.

The noble lord had referred to some Constitutional matters which affected the question of aerodromes to some extent. Section 41 (c) of the Malta Constitution Letters Patent of 1921 laid it down that "legislation by the Malta Legislature shall not extend to the control and regulation of aerial navigation and the compulsory acquisition of land and buildings for the purpose of aerodromes or for any other purpose connected with aerial navigation or aerial defence." In other words, this question of aerodromes fell within the category of reserved matters. The Colonial Office, so far from doing anything to obstruct the project of the Malta Government to construct an aerodrome, had sought to overcome the legal difficulties, within the terms of the Constitution, in order to make it clear that from a practical point of view the project was approved and welcomed. With a view to reconciling the legal and practical considerations two alternative courses were suggested to the Malta Government in November, 1928, by Mr. Amery. They were very reasonable alternatives, but Lord Strickland appeared not to have been satisfied with them, but to have desired the Malta Legislature to be given power to legislate on reserved matters. What the noble lord suggested was an amendment of the Constitution.

LORD STRICKLAND.—An amendment of one word.

LORD THOMSON replied that the amendment of the Constitution by one word was quite sufficient to make it an amendment. His Majesty's Government found considerable objection to meeting that view. That objection was based on the principle that certain matters must be kept in the hands of the Imperial Government, and that principle must be upheld. That principle was very much at stake in the case of Malta—at any rate, it was at stake while Malta retained its importance in the scheme of Imperial defence—and no amendment could be accepted. This particular case of aerodromes was of a border-line character under a dyarchial form of government. He appealed to the noble lord to work that form of government, with all its difficulties, in that spirit of goodwill which was essential to the development of the system, and he felt sure that if he would approach the question in that spirit an amicable solution would be reached. The Government would consider laying papers on the table referring to the noble lord's somewhat lengthy dispute with the Colonial Office, but as to the other papers in regard to the seaplane base, he could not pledge himself to do this without consulting the Admiralty.

LORD STRICKLAND withdrew his motion for papers.

THE COMMONS

Schneider Trophy

LIEUT.-COMMANDER KENWORTHY asked the Under-Secretary of State for Air whether, before deciding that the Royal Air Force would not again participate in the seaplane race for the Schneider trophy, he had reason to believe that private persons of British nationality would be prepared to enter for the next contest and be in a position to provide suitable machines; and if he has information as to whether foreign Governments intend to abstain from future contests also?

Mr. Montague: The decision of the Government to leave the entry to private enterprise was taken on grounds of principle and policy, and not on a calculation of the probability of private entries. I might point out, however, that until 1927 the responsibility for British participation was undertaken by private enterprise, and the Government feel that in the existing conditions created by two British successes it should be quite practicable for the former tradition to be resumed. I have no official information as to the intentions of foreign Governments.

R. 101 and R. 100

IN Parliament, on November 6, replying to Mr. Day, Sir J. Power, and Mr. Malone, Mr. Montague stated that 50 parachutes were carried in R. 101, the officers and crew being fully instructed in their use; that the cost of R.101 given in the Air Estimates of £527,000 would probably be slightly exceeded; that the contract price of R. 100 was £350,000, with an option to re-purchase. Further that judging by the successful progress of the trials of R. 101 she should be ready to make a flight to India some time in the coming winter. Mr. Montague also stated that he was advised R. 100 and R. 101 should prove suitable (subject, possibly to some minor modifications) for experimental operation and demonstration flights to the Dominions, but that a regular service could not, in any case, be established with only two airships. In regard to an estimate of the total cost, the number of airships, sheds, and equipment required for such a regular service, although various estimates had been worked out on paper, until the airships had been operated for some time much of the necessary data would inevitably be lacking.

Air Services and Municipal Aerodromes

MR. MONTAGUE, on November 7, in reply to Mr. L. Smith, said four towns —Blackpool, Hull, Nottingham and Manchester—have already established licensed aerodromes, the Manchester aerodrome, at Wythenshawe, being a temporary one. Six towns—Bristol, Carlisle, Liverpool, Plymouth, Stoke-on-Trent and Manchester for its permanent aerodrome at Chat Moss—have purchased ground for aerodromes. Ten other towns are negotiating for the purchase of ground and four others have reserved sites for aerodromes in their town planning schemes. In addition, 70 towns have shown that they are actively interested in the establishment of aerodromes; for 33 of these sites have been inspected and in nine other cases sites are awaiting inspection.

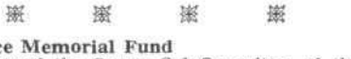
India Air Services

MR. BENN, on November 11, in reply to Major Pole, said: Negotiations were at present being carried on relating to the extension of the service to Delhi and subsequently to Calcutta. When experience had been gained of the working of the Karachi-Calcutta section, the extension of the service to Rangoon would be considered.

Royal Air Force Accident

MR. MELLOR asked the Under-Secretary of State for Air whether he can give any information with regard to the circumstances in which two Royal Air Force aeroplanes collided at Wallington on Thursday last, whether stunt flying was taking place, and, if so, would he see that manœuvres of this kind are confined to open spaces; whether he is aware that the aeroplanes carried machine guns loaded with live cartridges and that many of the cartridges exploded in all directions to the danger of human life, and whether the carrying of live cartridges in ordinary flying practice is contrary to instructions, and, if not, can he give an assurance that the practice will be discontinued in times of peace?

MR. Montague: The accident happened in the course of normal service exercises which were being carried out by two aircraft of a squadron stationed at Kenley aerodrome. This aerodrome is an integral part of the system of air defence of this country, and it is essential to the efficiency of the units stationed there that they should be able to carry out their training from their own aerodrome. It would be impracticable to limit such training to remote and unpopulated areas. The cartridges carried by one of the aircraft were part of its full equipment, practice in the carrying of which is again a necessary part of training. There has been no previously recorded instance in similar circumstances of cartridges exploding after impact, but orders are being issued to limit as far as possible in future the number of occasions on which live ammunition will be carried during training exercises.



The Royal Air Force Memorial Fund

THE usual meeting of the Grants Sub-Committee of the above fund was held at Iddesleigh House on November 7. Mr. W. S. Field was in the chair, and the other members of the Committee present were: Mrs. L. M. K. Pratt-Barlow, O.B.E., Sqdn.-Ldr. A. H. Wann. The Committee considered in all 11 cases, and made grants to the amount of £262 15s. 6d.

"Reunion Dinner for New Zealanders in the R.A.F."

A REUNION dinner is to be held in London on Saturday, November 30, for all New Zealand officers in the R.A.F. To ensure the success of this reunion it is essential that all New Zealanders should co-operate. For full particulars write immediately to F/O. Alan Binley, R.A.F., Worthy Down, Hants."



Flight-Lieut. S. D. Scott Joins Saunders-Roe Staff

A NEW accession to the technical staff of Saunders-Roe, Ltd., is Flight-Lieut. S. D. Scott, R.A.F. Flight-Lieut. Scott, who was, of course, a pilot on the Far East Flight and technical officer responsible for the maintenance of the aircraft and engines of the flight between overhaul bases, has an interesting record of experience. Before joining the Service he was with leading engineering firms in the capacity successively of fitter, tester, draughtsman, and engine inspector. The firms included Acer, Ltd., and Napier and Sons, Ltd.; J. I. Thornycroft, Ltd.; Bristol Tramway and Carriage Co.; Wolseley Motors, Ltd.; Austin Motor Co., Ltd.; Vauxhall Motors, Ltd.; Lanchester Motors, Ltd., and Clement Talbot, Ltd. Later he was fitter and tester at the R.A.F., Farnborough, and engine examiner in the A.I.D. In May, 1916, he was a flight sub-lieutenant, R.N., and was later posted as seaplane instructor, Calshot. He was promoted to flight-lieutenant R.N. in the following year, and became chief instructor Lee-on-Solent, and was again promoted to flight-commander R.N. Late in the year he was commanding No. 10 Group Repair Depot, Calshot, and in April of 1918 became captain, R.A.F. He commanded R.A.F. Seaplane Station, Torquay, in 1918 and 1919, and left R.A.F. in October, but rejoined in 1922 with a short-service commission. From 1922 to 1926 he was seaplane instructor at Calshot, carrying out the Kingston and Southampton flight trials, and making night flying-boat trials continuously. From January, 1926, until joining the Far East Flight he commanded the Seaplane Training and Reconnaissance Flight at Calshot. Flight-Lieut. Scott's service flying totals 1,700 hours, and his flying-boat experience should prove extremely valuable to Saunders-Roe, Ltd.

IMPORTS AND EXPORTS

AEROPLANES, airships, balloons and parts thereof (not shown separately before 1910.)

For 1910 and 1911 figures see FLIGHT for January 25, 1912.

For 1912 and 1913, see FLIGHT for January 17, 1914.

For 1914, see FLIGHT for January 15, 1915, and so on yearly, the figures for 1927 being given in FLIGHT, January 19, 1928.

	Imports.		Exports.		Re-exports.	
	1928.	1929.	1928.	1929.	1928.	1929.
	£	£	£	£	£	£
Jan.	1,220	2,852	157,598	74,307	330	100
Feb.	1,772	6,532	118,622	195,369	345	2
March	4,805	1,210	125,901	204,664	1,307	902
April	2,904	5,816	134,126	186,477	3	115
May	2,513	4,706	118,804	243,549	640	1,243
June	5,916	9,304	86,245	144,817	1,317	750
July	2,025	6,961	108,746	139,695	521	—
August	2,566	16,706	97,303	160,625	100	4
Sept.	4,240	510	72,475	237,303	3,183	9,686
Oct.	6,098	6,226	77,027	297,879	315	1,370
	34,059	60,823	1,096,847	1,884,685	8,061	*13,362

* This total as given is in accordance with the Governmental Trade accounts, although this total does not agree, as will be seen, with the Government items as given each month.

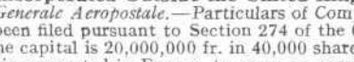


PUBLICATIONS RECEIVED

L'Helice Roue-Libre. By M. Pillard. l'Amelioration des Avions Multimoteurs par l'Helice. Ferran et Cie., 42, Rue Longue-des-Capucins, Marseilles, France.

Report on the Health of the Royal Air Force for the Year 1928. H.M. Stationery Office, Kingsway, London, W.C.2. Price 4s. net.

Travaux du Cercle d'Études Aérotecniques. Contribution a la Théorie de l'Hélice Propulsive. By Maurice Roy. Le Centre de Documentation Aeronautique Internationale de l'Aero-Club de France, 35, rue François-1er, Paris.



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Compagnie Generale Aeropostale.—Particulars of Compagnie Generale Aeropostale have been filed pursuant to Section 274 of the Companies (Consolidation) Act. The capital is 20,000,000 fr. in 40,000 shares of 500fr. each. The company was incorporated in France, to carry on commercial and industrial business relating to the manufacture, purchase and sale of aeronautical material; to create and exploit any lines of aerial navigation, etc. The registered office is at 92, Avenue des Champs-Elysees, Paris. The British address is at 52, Haymarket, S.W.1, where P. Grosfils, London Manager of the Air Union, is authorised to accept service of process and notices on behalf of the company. The directors are:—M. Boulloux-Lafont, A Boulloux Lafont, The Marquis Beppo de Massimi, R. de Burlet, Col. P. Dhe. R. Fould, P. P. G. Latecoere, A. Lazard and Marquis Thibault de Solages, all of Paris; A. Fortoul of Neuilly; J. Fraissinet of Marseille; M. Portrait of Santiago; and Count Emmanuel de Sieyes, of Buenos Aires.



AERONAUTICAL PATENT SPECIFICATIONS

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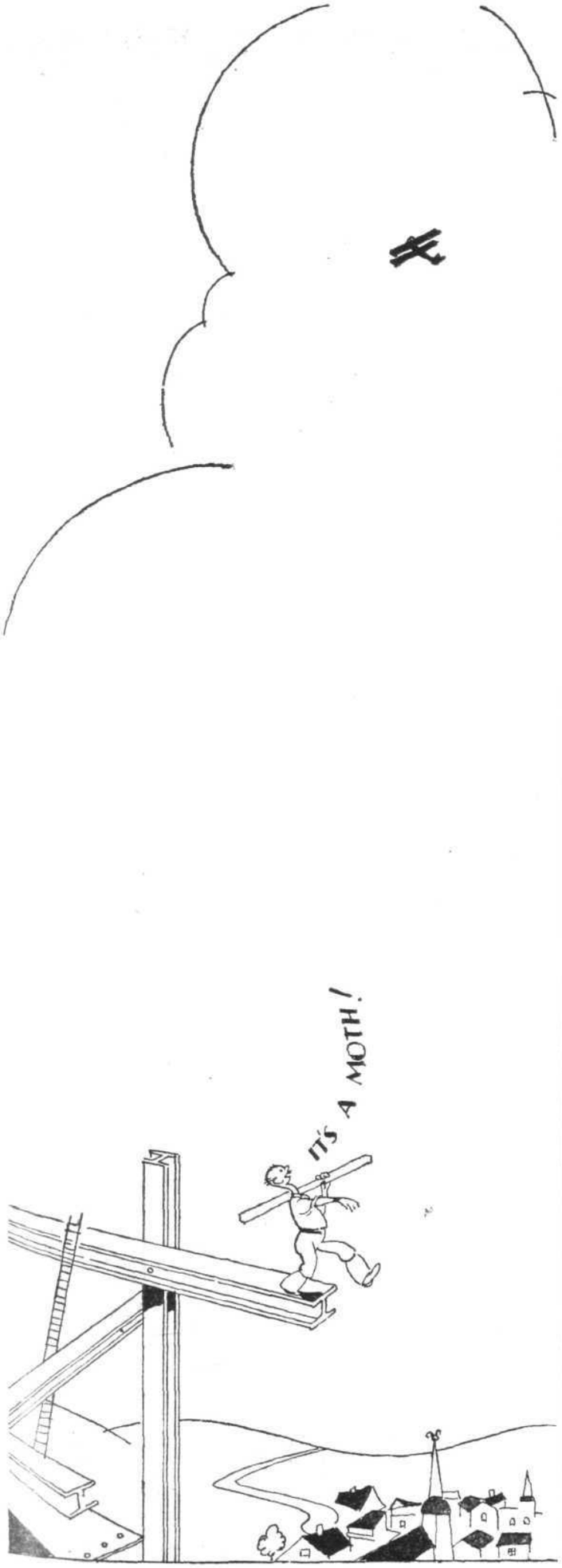
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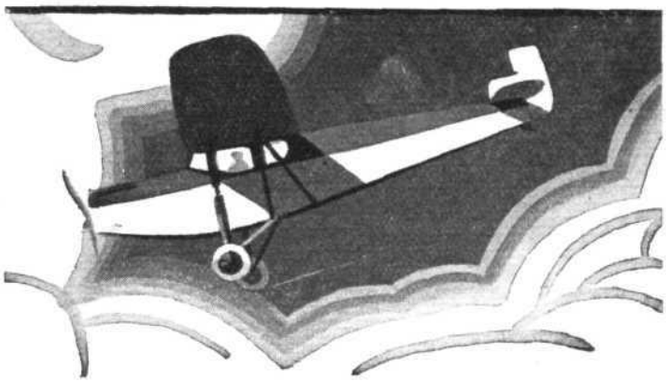
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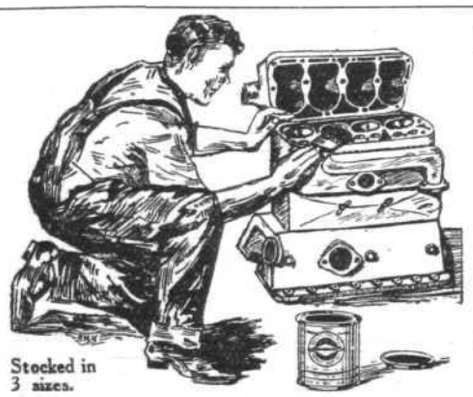
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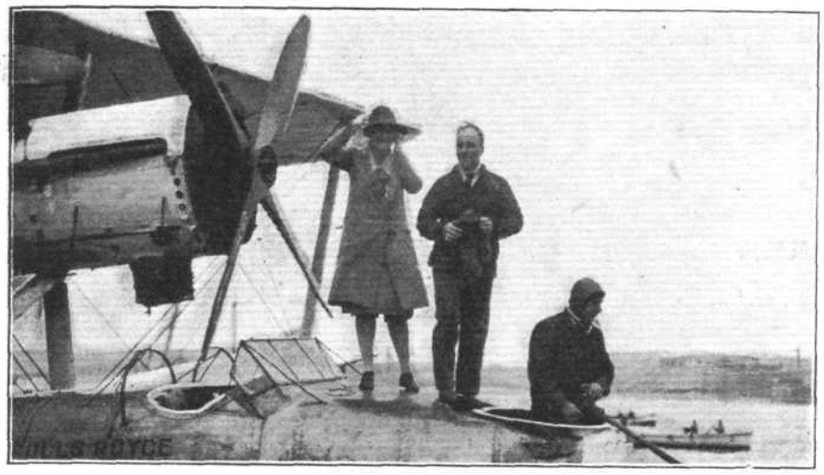
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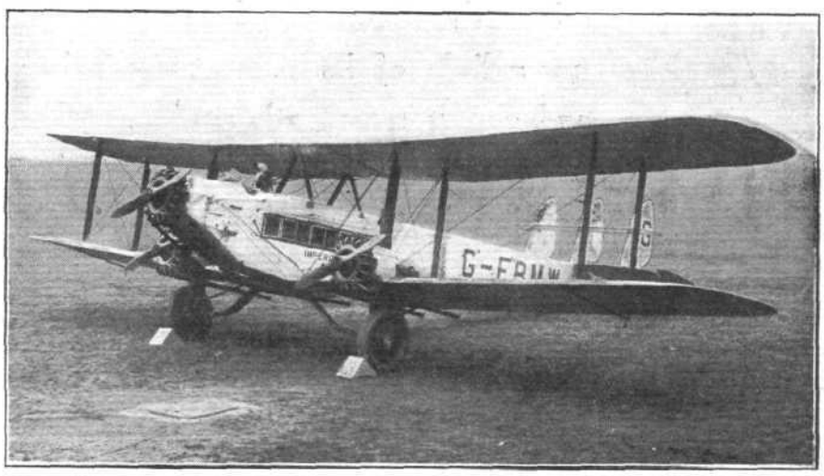


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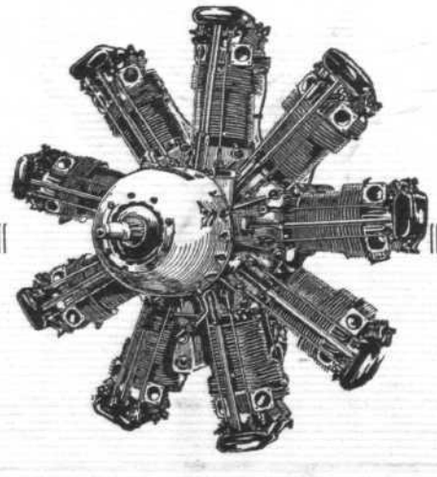
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